LANGUAGE USE AND LITERACY ENVIRONMENT AS PREDICTORS OF READING FLUENCY AND TEXT COMPREHENSION AMONG CLASS FOUR PUPILS IN BUSIA COUNTY, KENYA

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E83/22449/2012

A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY (EDUCATIONAL PSYCHOLOGY) IN THE SCHOOL OF EDUCATION, KENYATTA UNIVERSITY

MARCH, 2022

DECLARATION

I declare that this research thesis is my original work and has not been presented in any other university/institution for certification. The research thesis has been complemented by referenced works and duly accredited. Where data or text have been obtained from sources including the internet, these are recognized through referencing in accordance with anti-plagiarism regulations.

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DEDICATION

To my husband Paul Okumu Odongo and them that shape the destiny of children through education and training.

ACKNOWLEDGMENTS

I express with gratitude the exceptional support of my supervisors Dr. Doyne Mugambi and Dr. Jotham Dinga of the Department of Educational Psychology, Kenyatta University for their professional guidance throughout this research. You gave your intellectual worth and time toward the fulfillment of this work and for that, I am grateful.

I also extend my sincere appreciation to my research assistants Caroline Juma and Stanley Tumwa for their help and Mr. Leonard Juma who diligently helped in locating schools in the County Government of Busia. I am thankful to the school communities in the public primary schools of Busia County for their engagement in the study. Without their cooperation, this work would not have been completed.

I acknowledge the encouragement and support of my parents Celestine and Phoebe Oliwa. The journey to see this scholarly work happen started with your taking me to school. Thank you. A special thank you to my friend Isabella Kambua Munandi you are a friend indeed. To every silent contributor toward this study may God richly bless you.

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ABBREVIATIONS AND ACRONYMS

EGRA	Early Grade Reading Assessment
KCPE	Kenya Certificate of Primary Education
KNEC	Kenya National Examination Council
NACOSTI	National Commission for Science, Technology, and Innovation
OECD	Organization for Economic Cooperation and Development
PIRLS	Progress in International Reading Literacy Study
PISA	Program in International Student Assessment
SACMEQ	South Africa Consortium for Monitoring Education Quality
SPSS	Statistical Package for Social Sciences
USA	United States of America

ABSTRACT

Poor reading ability is of great educational concern because it has been linked to truancy, low completion rates, and educational wastage. Research among public schools in Kenya has shown failure among pupils to attain basic literacy after three years of school. The purpose of this study was to establish the extent to which language use and literacy environment predict reading fluency and text comprehension among class four pupils in Busia County, Kenya. The objectives of the study were to determine the extent to which language use predicts reading fluency and text comprehension, and literacy environment predicts reading fluency and text comprehension in English. The study examined the interaction effect between language use and literacy environment on reading fluency and text comprehension respectively. Gender differences in text comprehension and reading fluency were investigated. It was hoped that the findings would inform the current understanding of reading achievement among class 4 pupils. The study was informed by David Rumelhart's schema theory and Vygotsky's sociocultural theory. A correlation research design was adopted. The select population were pupils in class 4 from public primary schools in Busia County, Kenya in 2018. Stratified, simple random and cluster sampling techniques were applied in the study. A sample of 388 pupils and 9 teachers were selected from seven mixed public primary schools. A pilot study using 30 class 4 pupils from a non-participating school helped establish the validity and reliability of the research instruments. Questionnaires, interviews, and observation methods were used to collect data on language use and literacy environment, while a reading test measured pupils' reading fluency and text comprehension. Qualitative data were analyzed using thematic analysis and Quantitative data was analysed using linear regression analysis, two-way ANOVA, and t-tests which tested the respective null hypotheses at α=0.05. There was no statistically significant relationship between language use and reading fluency and between language use and text comprehension. However, the use of English within the school context significantly predicted reading fluency $F(4,383) = 4.44$, $p < 0.05$ and text comprehension $F(4,387) = 5.40$, $p < 0.05$. Literacy environment significantly predicted reading fluency and text comprehension. There was no significant interaction effect between language use and school literacy environment on reading fluency. A significant interaction effect was present between language use and school literacy environment on text comprehension $F(2,388) = 10.84$, $p < 0.05$. A significant gender difference in reading fluency was observed but there was no significant gender difference in text comprehension. The study concluded that the use of language of instruction in school and not at home is a significant contributor to reading fluency and text comprehension. For effective reading, the provision of reading resources alone is insufficient, and reading support is important for reading achievement. It was recommended that teachers should model correct English language use and be encouraged to teach reading for text comprehension. A reading program geared towards improving reading among boys was also recommended.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter discusses the background of the study, statement of the problem, the purpose of the study, objectives of the study, research questions, significance, assumptions, limitations, delimitations, the theoretical and conceptual framework of the study.

1.2 Background of the Study

The United Nations recognizes literacy as one of the pillars of 2030 sustainable development goals (SDGs). As stated in UNESCO Institute for Statistics (UIS) fact sheet number 46 of 2017, Africa appears to struggle in attaining SDG 4 which attempts to establish 'inclusive and equitable quality education and promote life- long learning for all' (United Nations, 2016). It is reported that the continent is home to 33% of school-age children who cannot read despite the observed increase in school enrolment. According to the report, the highest number of pupils not attaining the minimum proficiency in reading is from sub-Sahara Africa.

Although one of the goals of enrolling pupils in school is that they should acquire the skill to read and obtain the meaning of the written text, there is a gap in realizing this goal. Over the last two decades, Progress in International Reading Literacy Study (PIRLS) has conducted studies on reading achievement among grade 4 pupils across five continents and the results have often shown wanting results in reading (Mullis, Martin & Prendergast, 2017; Mullis, Martin, Foy, &

Drucker, 2012). In the most recent international reading assessment report by PIRLS 2016, the lowest reading scores were from participants from Egypt, South Africa, and Morocco in Africa. South Africa was ranked 50th out of 50 nations that took part in the study. According to PIRLS findings, the trend over the last ten years has shown a rise in reading literacy with at least 96% of 4th graders attaining a low international benchmark in reading (Mullis, Martin & Prendergast, 2017). Although a significant improvement in reading comprehension was reported, this was only true of 43% of the participants. Generally, no significant difference in reading achievement among pupils in grade 4 was indicated in the study. Howie, Combrinck, Roux, Tshele, Mokoena, and Palane (2017) also reported less than 20% of Grade 4 learners from Africa reached a 40% mark in reading assessment. The large-scale assessment has repeatedly reported a gender gap in reading comprehension in favour of girls since 2001 (Martin, Mullis, and Hooper, 2017) and this phenomenon is evident in different studies (Kainyu, 2017; Mwoma, 2017, Piper, Schroeder, & Trudell, 2016).

Studies at regional and national levels show poor reading achievement among primary school pupils along with varied demographics (Ogetange, 2018; Piper, Schroeder, & Trudell, 2016). Tests developed to assess reading competency and comprehension in Kiswahili and the English language show a general deficiency in reading literacy among children in public primary schools in Tanzania, Uganda and Kenya (Uwezo, 2015).

At the national level, a research on learner achievement at class 3 by the Kenya National Examinations Council (KNEC) in 2016 and 2018 showed an improvement in basic reading from 38.1% to 53.1% in two years. However, reading for meaning in that period remained at a low of 41.2%. This means that primary school pupils still performed poorly at reading (KNEC, 2020). The inability of pupils in Kenya's public schools to attain basic literacy skills after three years of classroom instruction leaves a large number of struggling readers graduating from class 3 to class 4. This is an issue of concern for learners' school progress and academic success.

Etmanskie, Partanen, and Siegel (2016) observed that the first indication of poor reading is noticeable in class 4 through pupils' reading comprehension but few studies have looked at factors affecting reading achievement among class 4 pupils. Most studies on reading achievement both globally and nationally have focused on early or preschool years (Opiyo, 2017; Lewis, Sandilos, Hammer, Sawyer & Mendez, 2016; Yeung & King, 2015). Literacy studies done recently in Kenya by the Kenya National Examination Council (2020) and Schroeder, Piper, and Trudell (2016) also focused on class three pupils. It seemed important to study class 4 because they are expected to read to learn, and the use of English in learning particularly in public primary school education in Kenya is reinforced at this level.

Language use among school-going children becomes challenging when formal learning begins. The language policy which also requires the use of English language when teaching learners from class 4 presumes that pupils in this class

have attained sufficient use of Kiswahili or Mother tongue to allow for the transfer of learning from either language to English. In reality, these languages may often be insufficiently developed. Some researchers argue that pupils in class 4 are not even ready to use the English language for learning (Kembo-Sure & Ogechi, 2016).

Kenya's Education policy requires that during the first three years of primary school, pupils are taught how to read in their mother tongue or the language of the catchment area. Pupils are instructed in Mother Tongue or Kiswahili while English is taught as a subject. The use of Mother tongue in early education has been encouraged since research shows that when adequately developed, mother tongue facilitates learning in consequent languages (Cummins, 2000). The use of Mother tongue is however not reinforced at school nor is English language use reinforced at home (Mavuru & Ramnarain, 2020; Mokua, 2014). The use of Mother tongue in lower primary instruction is considered inferior to the use of the English language as teachers value teaching in English over Mother tongue (Khejeri, 2014).

An often-overlooked language crisis occurs at the period of pupils' transition into middle school where after three years of learning in mother tongue or language of the catchment area, class four pupils are required to learn in English. The requirement to read in English to learn presupposes that learners at this level have the required proficiency in the language of learning. Many children at this level may not have mastered the English language enough to be instructed in it and many have no use of English outside of school. As pupils in public schools

progress from lower primary into middle primary school, many are forced to use English through rewards and punishment. Sometimes teachers in multilingual schools will reinforce the use of English by subtly or openly punishing pupils' use of their mother tongue (Rotich, 2021; Orwenjo, Njoroge & Ndung'u, 2014).

Students who use English more than any other language are advantaged and tend to enjoy the classroom learning experience more than those who do not because they can engage in classroom activities in the agreeable language. Pupils who have had an early start in spoken English will speak the language with ease and show a definite advantage over those with inadequate exposure (Berthet, 2020). Research findings also show that teachers tend to give preferential treatment to pupils who use English over those that do not. Inability to speak or read in English often excludes some pupils from the learning process and minimizes student-teacher interactions (Zakharov, Tsheko, & Carnoy, 2016; Kamano, 2011; Lisanza, 2011).

In Kenya, Class 4 is a transition class where pupils having learned English as a subject now use the language to learn all subjects in the curriculum but Kiswahili. Though English is taught in the classroom, its use among classmates and peers in the playfield is often doubtful and pupils' practice in speaking the English language is minimal. The introduction of the English language for learning has been shown to lower pupils' spontaneity in learning because pupils are unable to sustain a discussion with their teacher in English (Baraza & Abeka, 2019; Sifuna, 2013). Regardless of their level of English language exposure, class four pupils must use the English language to speak, read and engage in

learning activities at school. A study by Kembo-Sure and Ogechi (2009) on language use in primary classrooms suggests that this transition is 'premature' because it disallows children the chance to expand intellectual and cognitive skills in their home language which they can later transfer to English.

Language use is important since empirical evidence shows that pupils who exclusively use the language of instruction perform better than those that use a home language or vernacular (Berthet, 2020). The findings imply that pupils' classroom experiences may depend on their language use. Empirical studies have investigated the association between language use and reading ability and seem to show the need to examine language use in context. The use of English at home for example is not associated with reading ability while its use outside the home has been associated with reading achievement (Mwoma, 2017; Agirdad & Vanlaar, 2016).

Research findings show a direct link between rich home literacy environments and reading comprehension. A literacy-rich environment enriches literacy experiences for pupils and facilitates their access to the education curriculum while pupils with limited print experience a lag in reading (Opiyo, 2017; Baltar & da Mota, 2016; Yeung & King, 2015). Homes with many books where reading is valued and which offer support to young readers foster reading interest among children, while literacy practices such as parents' active role in storytelling and shared book reading have been associated with reading achievement (Mwoma, 2017; Sénéchal & LeFevre, 2014). Among school-going children, studies show that schools that have reading resources motivate reading among school pupils

and bridge the gap that exists among learners from literacy-rich and those from literacy-deprived home environments. Where lack of books at home is countered by a school that provides opportunity and support for a reading activity, even learners from poor home literacy environments can become good readers (Van-Vechten, 2013). This would imply that schools that have books and support reading activity might moderate the impact of a poor home literacy environment on reading achievement. With the understanding that literacy environment can be associated with reading achievement and the apparent evidence showing that this relationship has been more focused on grade 3 pupils and below, the current study looked at selected reading resources both home and school in relation to class 4 pupils reading fluency and comprehension.

According to the Busia County Integrated Development Plan 2018-2022, the county is below the national target for reading and writing. The Sixth Annual National Learning Assessment report by UWEZO (2016) placed Busia in the 27th position out of 47 counties in Kenya. The study also reported that only 25.4% of class three pupils in Busia County, Kenya read at their level. Although this was an improvement from 19.1% reported in 2011, the findings also mean that about 70% of pupils in Busia County join class four reading English below-average level (Uwezo, 2016). Although it was reported that pupils in Busia County rate poorly in reading achievement, explanations for this phenomenon remain scanty.

A study on preschool children's reading achievement in Kajiado County, Kenya by Mokua (2014) recommended that future research in reading achievement

should explore the home and school-based factors that influence reading in the English language in public primary schools in Kenya. The study also proposed that reading studies should consider differences in language use as factors that could also influence reading achievement among pupils. These recommendations prompted this inquiry on the relationship between language use and literacy environment on reading fluency and text comprehension among class four pupils. The current study's intent was to investigate whether class four pupils' literacy environment and language use could predict their reading achievement. It looked at how language use in general, and the use of the English language in particular, contributes to reading fluency and text comprehension among Class 4 pupils from Busia County, Kenya. The study was conducted in a trilingual context among pupils who are exposed to their mother tongue which is mainly Luhya and Iteso, as well as Kiswahili and English.

1.3 Statement of the Problem

There is a concern over poor reading outcomes and a failure among public primary school pupils in Kenya to attain basic literacy after 3 years in school. Failure to meet education goals for literacy at the national and global level means that an increasing number of struggling readers could drop out of school without having completed primary education. Reports indicate that in Busia County, reading levels are below the national average and the factors related to this performance remain scanty. Addressing the issues behind poor reading outcomes could help improve pupils' mastery of basic literacy skills and avoid wastage in the education system.

Research findings show a relationship between language use and reading fluency but there is a gap in information about readers in class 4. Local studies show that pupils whose reading is below expected levels are instructed in the English language which many have not mastered and which is not reinforced at home. Exposure to three languages namely English, Mother tongue, and Kiswahili before any is mastered; and failure of the languages used at home to support the language used in the classroom compromises learning for young readers.

Studies on reading literacy in Busia County, Kenya have overlooked the combined influence of the rich language diversity and literacy environment in reading achievement among class 4 pupils. An understanding of home and school literacy experiences and the respective languages associated with them would provide important information on the learner's learning environment.

Although research reports that the literacy environment is related to reading fluency and text comprehension, local data is largely focused on class 3 and preschool pupils. It is currently unclear how both language use and literacy environment are associated with reading fluency and text comprehension of class 4 pupils in Busia County. Lack of local data on the study variables risks developing ineffective and uninformed learning interventions for young readers. The essence of this research, therefore, was to answer the question of the extent to which language use and literacy environment predict reading fluency and text comprehension among class four pupils in Busia County, Kenya.

1.4 Purpose of the Study

The purpose of the study was to establish whether language use and literacy environment predict reading fluency and text comprehension among class four pupils in Busia County, Kenya. The study also sought to establish whether there is an interaction effect between pupils' language use and literacy environment on text comprehension and reading fluency respectively. Gender differences in reading fluency and text comprehension were also investigated.

1.5 Objectives of the Study

The study was guided by the following objectives:

i. To determine the extent to which language use predicts reading fluency among class 4 pupils in Busia County, Kenya.
ii. To determine the extent to which language use predicts text comprehension among class 4 pupils in Busia County, Kenya.
iii. To establish the extent to which literacy environment predicts reading fluency among class 4 pupils in Busia County, Kenya.
iv. To establish the extent to which literacy environment predicts text comprehension among class 4 pupils in Busia County, Kenya.
v. To examine the interaction effect between language use and literacy environment on reading fluency among class 4 pupils in Busia County, Kenya.
vi. To examine the interaction effect between language use and literacy environment on text comprehension among class 4 pupils in Busia County, Kenya.

vii. To investigate gender differences in reading fluency scores among class 4 pupils in Busia County, Kenya.

viii. To investigate gender differences in text comprehension among class 4 boys and girls in Busia County, Kenya.

1.6 Research Hypotheses

The following hypotheses were developed to guide the study:

H_{a1}: Language use significantly predicts reading fluency.

H_{a2}: Language use significantly predicts text comprehension.

H_{a3}: Literacy environment significantly predicts reading fluency.

H_{a4}: Literacy environment significantly predicts text comprehension.

H_{a5}: There is a significant interaction effect between language use and literacy environment on reading fluency.

H_{a6}: There is a significant interaction effect between language use and literacy environment on text comprehension.

H_{a7}: There are significant gender differences in reading fluency among class 4 pupils.

H_{a8}: There are significant gender differences in text comprehension among class 4 pupils.

1.7 Significance of the Study

The findings may help educators improve the current understanding of factors that influence pupils' reading achievement in primary schools. For parents, an understanding of the relationship among the study variables may have implications for the development of a home environment that fosters reading achievement. Identifying home experiences that lead to success in reading may provide crucial information for engaging parents as agents of change in pupils' reading improvement.

The findings of this study may draw public interest to the need for literacy programs inside and outside school that foster reading fluency and text comprehension. Information on class 4 pupils' text comprehension may help teachers identify lapses in pupils' reading ability and help them set targets for pupils' reading improvement. The pupils will benefit from reading instructions that are informed by data and research evidence.

Findings on pupils' language use may sensitize curriculum developers on the need to develop books translated into various languages in the readers' environment. For policy makers, the study may give more insight on how language use influences text comprehension and reading fluency in English and inform the future development of programs that improve reading among primary school pupils. In research, the study may answer the question of poor text comprehension while revealing the pattern of oral language use among class 4 pupils in and out of the classroom. This study was intended to add to the existing

body of knowledge in reading psychology and serve as a stimulus for further research in the same area.

1.8 Limitations and Delimitations

1.8.1 Limitations of the Study

This study used self-report questionnaires for data collection. This is a limitation because the influence of social desirability cannot be ruled out. The researcher ensured that respondents were aware of the anonymity of their responses. No names or identification was required from the respondents. To minimize the instrumentation limitation, interviews were also used to gather information. The study was limited to selected schools in Busia County meaning that conclusions may not be generalized outside the population from where the study sample was obtained.

1.8.2 Delimitations of the Study

Although there are other factors related to reading fluency and text comprehension this study only focused on pupils' language use and literacy environment. Though there were varied languages pupils use to read, the study only examined pupils' reading in English. This is because it is the language of instruction from class 4 and the main language of examination in school. The sample of the study was drawn from pupils attending mixed public primary schools meaning that private school pupils were not included in the study. They have characteristics that may differ from pupils in public primary schools. The study was conducted in Busia County, Kenya and the application of the study's findings in other areas must be done cautiously because of the different context.

1.9 Assumptions of the Study

The study made the following assumptions:

i. Class 4 pupils were exposed to more than one language and have a language they use frequently in varied contexts. To address this assumption, pupils were sampled from different schools within the county.

ii. Class 4 Pupils were expected to provide accurate information regarding their language use and literacy environment. Triangulation helped address this assumption.

1.10 Theoretical and Conceptual Framework

1.10.1 Theoretical Framework

The study was guided by Vygotsky's Socio-cultural Theory and David Rumelhart s' Schema Theory.

a) Vygotsky's (1978) Sociocultural Theory

The study was informed by Vygotsky's (1978) Socio-cultural Theory. This is a theory of cognitive development that supports the assertion that without social interaction with knowledgeable others, no cognitive development will occur. According to the theory, children learn cognitive tasks through their interactions with others who are more knowledgeable. The person in a child's environment who is more skilled and experienced facilitates the child's learning. Children learn by observing and imitating others who are more knowledgeable and who assist them to learn progressively from the known to the unknown. Mediation

and scaffolding by a knowledgeable peer, sibling, and parent assist cognitive development. This progression is possible through guidance and encouragement. Unlike Piaget's theory of cognitive development that focuses on the child and its actions being necessary for learning to occur, Vygotsky's theory emphasizes society and culture. Pupils can accomplish more as readers when working in collaboration with others than without them. Reading stories to young children for example affects their vocabulary and evokes their interest in reading. Parents may offer support to readers at home by reading to preschool children, buying books, allocating a place and time for reading, etc.

A parent's interaction with books may also model reading behaviour that children imitate. Where an environment stimulates literacy activities, reading motivation is fostered. Within the zone of proximal development, the broader and richer the experiences provided to children, the more likely they will learn. Books, magazines, television, road signs, chart, and billboards all support reading by providing an opportunity for frequent engagement with print. Interaction with print material also helps children develop new ideas and concepts in written language.

Language use and literacy are anchored on two principles of Vygotsky's Theory namely; that culture is significant in learning and therefore society and culture intentionally support cognitive development by engaging children in activities that are challenging. At home and in school, for example, families and school communities including peers provide social interaction through language which is the root of culture and key in cognitive development.

For school-going children, the teacher's role is crucial because teachers decide pupils' learning activities and plan for pupils' meaningful interaction with language in its various forms. They allow children to listen to spoken language or read the written text to fellow learners. The broader and richer the reading experience of a child, the more likely they are to learn to read. Although the socio-cultural theory addresses the environment necessary for learning, it does not address the nature of cognitive skills required of the learner nor does it have a precise learning mechanism. The theory gives insufficient attention to the role of the individual because it emphasizes the place of the socio-cultural group. The individuality of the child is lost in the mind of the socio-cultural group even though knowing the child's cognitive level is also important for learning.

Vygotsky's socio-cultural theory was deemed appropriate for this study whose interest is reading fluency and text comprehension with language use as one of the variables that could explain it. The theory recognizes the significance of culture and society in fostering language which is key for thought.

b) Schema Theory by David Rumelhart (1980)

Psycholinguistics and cognitive psychologists have used the concept of schema to understand how variables interact to influence reading comprehension. The schema theory by David Rumelhart (1980) forms the basis of understanding reading comprehension. According to the schema theory, text comprehension is 'an interactive process between the reader's background knowledge and text.' The schema theory assumes that on its own, written text does not carry meaning. Rather, the text gives readers direction on how to retrieve meaning from

previously acquired knowledge. This theory helps to explain how a reader's prior information assists in their text comprehension. It also attempts to explain why reading comprehension challenges arise from decreased text unfamiliarity.

The schema theory asserts that the knowledge an individual acquires is stored in mental structures or schemata. According to Carrel (1984), there are three types of schemata. Linguistic schemata, for example, refers to the reader's existing language, vocabulary, and grammar. This means that a pupil with limited language or vocabulary would show lesser ability to comprehend text than one who has more language exposure. Formal schemata refer to textual organization in its different genres. This means that a reader's understanding is deepened once they have interacted with different reading materials in the form of poems, short stories, newspapers, and so forth. Content schemata refer to a reader's previous experiences on a topic and familiarity with cultural information. Rich literacy environments characterized by model readers, reading support, and other printed matter, aid young readers, unlike print-deprived environments.

Reading comprehension is a socio-cognitive process where the reader, the text, and the classroom community help the learner negotiate text meaning. The social environment provides opportunities for communicating and practicing languages among children. Pupils who use the English language more were expected to show greater reading fluency and text comprehension in English than those who would not. It was also expected that pupils from literacy environments with more reading resources and support for reading would show higher reading achievement than those from a less rich literacy environment.

Though important, Vygotsky's theory with its focus on social processes was limited in describing the role of prior background in text comprehension. Although schema theory provides a descriptive framework in understanding, many have raised concerns about its ambiguity in the measurement of schemata. Despite their inherent limitations, these two theories explain the role of psychosocial factors in pupils' reading. They also give a basis for investigating the languages pupils use and the context in which they are used. The theories also help to predict good from poor readers based on their literacy experiences and provide us with an appreciation of the relationship that may exist between the study variables.

1.10.2 Conceptual Framework

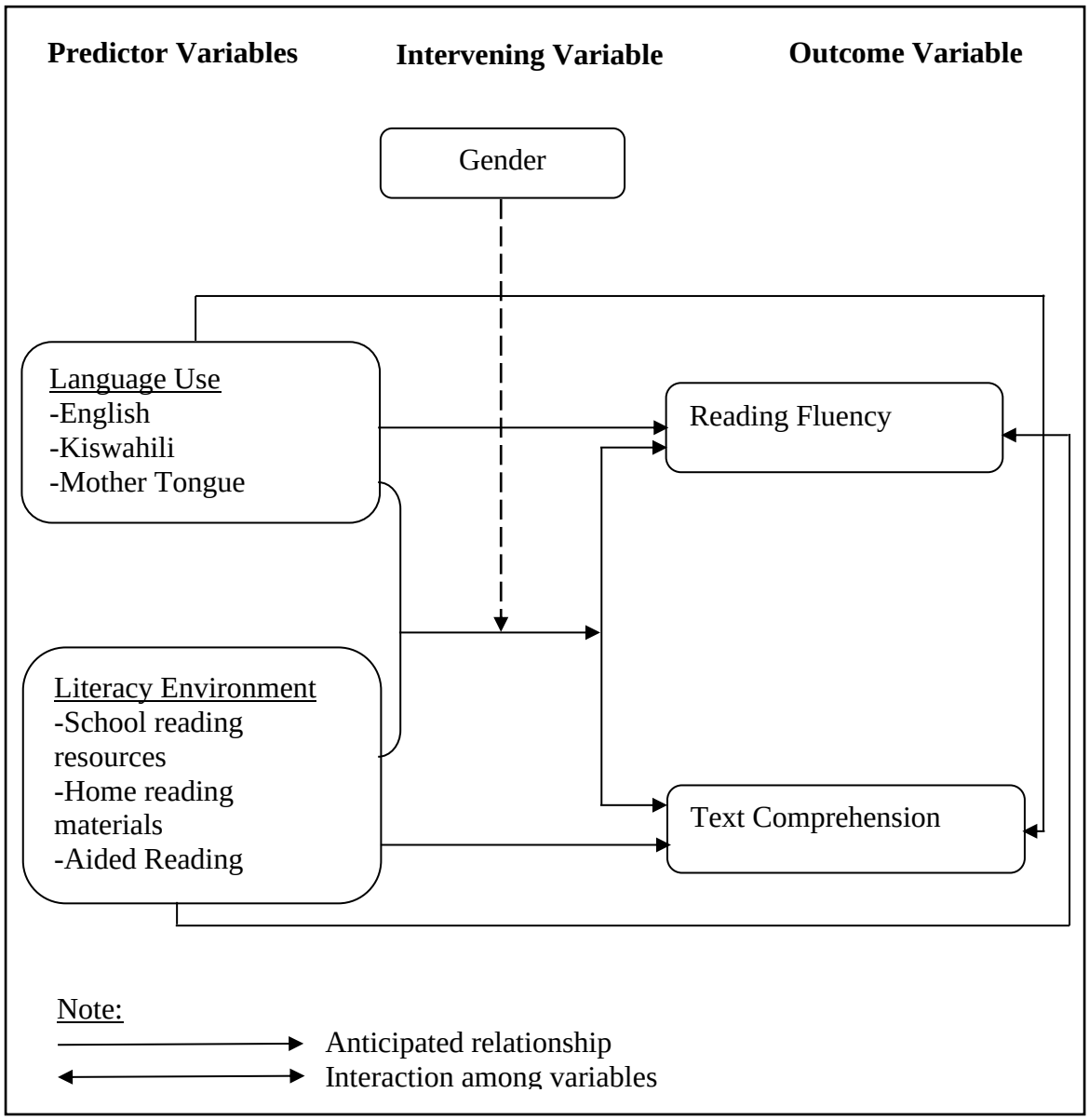

Figure 1.1: Conceptual Framework

Source: Researcher's Conceptualization, 2019.

The predictor variables in the study were language use and literacy environment. The outcome variables were reading fluency and text comprehension. Three languages pupils used were English, Kiswahili, and Mother tongue while the literacy environment investigated home and school reading resources. Language use and Literacy Environment independently influence reading fluency and text comprehension. Together, the two independent variables interact to influence reading fluency and text comprehension respectively. Arrows indicate the direction of the relationship between the variables. An interaction between the predictor variables is indicated. Gender is an intervening variable that explains the link between the independent and outcome variable.

1.11 Operational Definitions of Key Terms

Aided Reading: Support individual pupils receive toward reading activities at home. In this study, this was measured by reading materials provided and reading practice that pupils receive at home.

Home Reading Materials: Written materials available at home. In this study, this was measured by the number of reading resources in a home literacy checklist.

Language Use: Language pupils speak the most. In this study, this was measured by the frequency with which pupils use Kiswahili, English, and Mother tongue.

Literacy Environment: Presence of reading resources and support pupils receive for reading. In this study, this was measured by the presence of varied reading resources at home and school.

Mother Tongue: The home language or native language of the pupils. In this study, it is the language used by pupils which is neither English nor Kiswahili.

Reading Fluency: Correct oral reading of words from a written passage. In this study, this was measured by the average score of words correctly read in one minute from an English text.

School Reading Resources: Written materials available at school. In this study, this was measured by the number of observed items in a school literacy checklist.

Text Comprehension: Scores obtained from a reading comprehension test. In this study, this was measured by correct written responses to questions from a short passage written in English.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter provides a review of related literature on the study variables in line with the objectives of the study.

2.2 Relationship between Language Use and Reading Fluency

Language use is the conscious or spontaneous choice of language for daily communication. Choosing one language over another is influenced by among other reasons, one's residential area, cultural identity and context, and language policy. For example, children are more exposed to their parents' language at home and therefore tend to use their home language more there than at school. Individuals also use different languages depending on activities and their environment (Nölle, J., Fusaroli, R., Mills, G.J. Tylén, 2020).

Agirdag and Vanlaar's (2016) study on the relationship between students' language use and reading achievement found that students' use of the language of instruction within the school context was positively related to their reading achievement. There was also a positive relationship between the use of the home language and students' reading achievement. The study which used multivariate regression analysis was able to assess the language use of the pupils both in context and with specific persons. The study which used Program for International Student Assessment (PISA) 2012 data looked at three outcomes of learning, one of which was reading achievement. The researchers used open-ended questionnaires for parents and students from Organization for Economic

Cooperation and Development (OECD) member nations in Europe and Asia. The data was drawn from 120,000 students attending 5,000 schools in 18 countries. The analysis which controlled for school and student characteristics discovered a positive association between the first language and reading achievement. Language use specifically with participants' friends was associated with reading achievement. Those who used the language of instruction the most, obtained higher scores in reading fluency compared to participants who said they used their home language most. There remains the question of what new findings would be gained from a Kenyan context. Pupils in Kenya live and learn in a trilingual environment and a study is warranted to address this aspect that is missing in the reviewed study.

Africa is rich in language and school-going children oftentimes learn in a language that differs from their home language. In schools, teachers' language of instruction is often guided by government-directed education policy. In Kenya, as in South Africa and other former colonies, teachers in government schools are required first to instruct children in the language of the catchment area, or their home language; then in the 4th grade the teacher uses a colonial language like Afrikaans in South Africa or English in Kenya (UNICEF, 2016).

The use of mother tongue, Kiswahili, and English almost simultaneously is complex for learners. Studies carried out in Kenya show a relationship between the language that pupils frequently use and their performance in reading. Berthet (2020) dissertation investigated pupils' use of Kiswahili and English languages in the school and home environment. Using data gathered from a United States

Agency for International Development (USAID) survey conducted in 2012, the researcher obtained information on pupils in an urban context who spoke Kiswahili, Mother tongue (e.g Kikamba), and English. The study found that children who spoke Kiswahili while at home obtained higher reading scores in Kiswahili than those who did not. Those who used Kiswahili the most also obtained higher scores in English reading tests than those who did not. The use of a similar language both at home and school appeared to help in the reading of the same and subsequent language too. The current study only tested reading in English which is the main language of instruction and examination, and the language whose use is reinforced in schools particularly among pupils from class 4.

Piper, Schroder, and Trudell (2016) using data from Early Grade Reading Assessment compared reading among 2,000 class three children from Central and Nyanza provinces. The study involved children with an average age of 9 years who were assessed in oral reading fluency and Kiswahili, English, and Mother tongue text comprehension. The findings showed that the children were most fluent in reading in English than in Kiswahili and Mother tongue. The study did not consider the languages that pupils spoke most frequently in relation to their reading fluency nor did it consider the use of the English language in conversation with the teacher and fellow pupils. The current study focused on the assessment of English which is the main language of instruction and examination after primary school in Kenya. The current study intended to look

at pupils in class 4 who should read to learn unlike those in class 3 who are learning to read as is the case in their study.

Piper and Zuilkowski (2015), in an assessment of reading fluency studies in Kenya using data from the Primary Math Reading Initiative (PRIMR), conducted a comparative study of grade 2 pupils' oral reading fluency in English and Kiswahili languages. The study found no statistical difference in reading fluency in either of the languages. The study sample consisted of 20 boys and girls from each of the 40 schools selected in Machakos and Bungoma counties. Two reading passages measured oral and silent reading fluency and reading comprehension. A regression model indicated that oral reading fluency was a better predictor of comprehension in English and Kiswahili language than silent reading fluency. The study sampled grade 2 pupils who are still learning to read and have had limited exposure to the use of the English language after only two years of primary education. It seemed important to address learners in grade 4 who are currently supposed to learn in English and this is what the current study sought to examine.

Wang'eri and Mugambi (2014) investigation of school and home variables in relation to reading fluency of class 3 pupils reported that children hardly expressed themselves in Kiswahili and English at home. Pupils in public schools were less fluent English readers than those in private schools. Although the study established the languages used by class 3 pupils, it did not go further to examine whether the languages the pupils use could explain pupils' reading fluency. It is possible that because of the non-probability nature of purposive sampling used

in the study, a different result could have been achieved if different selections were made. Unlike the purposive sampling method which has a high probability of researcher bias, the current study used the more objective probability sampling method. The current study was carried out in Busia County which has a comparatively lower urban population of 16.4% against Kiambu County's urban population of 60.8%. It has a lower literacy rate of 56.7% against Kiambu County's 87.4% (Kenya County Fact Sheets, 2011). The different context was thought to yield different learning experience for learners and present different results.

Earlier studies in the Kenyan multilingual context done by Piper and Miksic (2011) used Early Grade Reading Assessment results to determine the use of English, Kiswahili, and Mother tongue at school and home. Using least squares regression analysis, the use of the English language explained 6.9% variance in English oral reading fluency while Gikuyu explained 7.2% variance in Gikuyu reading fluency. The use of Gikuyu among the participants of the study was significantly related to oral reading fluency in Gikuyu. However, they found no relationship between the use of Dholuo and oral reading fluency in the same language. Although the study showed no causality, it was able to establish a relationship between language use and oral reading fluency. The present study did not consider reading in the Mother tongue but focused on class 4 pupils and their English oral reading fluency.

2.3 Relationship between Language Use and Text Comprehension

Papastefanou, Marinis, and Powell (2021) compared the reading comprehension of 40 monolingual and bilingual Greek-English speaking school children. They assessed their reading during the first four years of schooling in the United Kingdom. The researchers examined oral language skills and text comprehension. They measured the children's language use at home and outside the home. Findings from multiple linear regression showed that home language used outside the home significantly predicted reading comprehension in the same language. The use of Greek outside the home had no negative effect on English comprehension. However, reading comprehension was found to be lower among bilinguals than monolingual participants. The current study examined the languages pupils are exposed to both at home and school in relation to their text comprehension in English and was conducted in a different context.

In the United States of America, Hwang, Mancilla-Martinez, McClain, Oh, and Flores (2020) research among 2nd and 4th-grade Spanish-speaking pupils sought to find out the relationship between the learners' English language, literacy skills, and vocabulary. They collected data on the learners' vocabulary, proficiency, and comprehension. Parents of the 62 participating learners responded to questions on language use at home and stated how their children used language among the family members. Results of Ordinary Least Square regression revealed that the learners' expressive and not receptive vocabulary predicted their reading comprehension in English. The language in which they expressed themselves was an indicator of their existing vocabulary or knowledge

of concepts. This study was limited to a homogenous, Spanish dominant sample and there was a need to explore findings from a developing nation that does not use Spanish. Having reviewed the study with many countries outside Africa, there is a need to investigate whether similar results could be obtained in a different context as Kenya.

In a longitudinal study Ribot, Hoff & Burridge (2018) assessed the expressive language of 47 pre-school boys and girls. They reported that the Spanish-English children in the study showed greater vocabulary in the same language that was most used at home. Vocabulary has been shown to correlate with comprehension of language. The parents recorded the language in which they spoke and the language in which their children responded. Although data collection was conducted in a natural environment, the collected information relied on the memory of the parents, and this reliance on recall is not always accurate. Being very young, the study participants may have had limited vocabulary when compared with the older participants as was the case in the current study. This study was aimed at understanding pupils' language use in relation to their text comprehension in English which is the main language in curriculum examination in Kenya.

A quasi-experimental study in China on the effect of different learning environments on reading comprehension and vocabulary size by Dong, Hu, Wu, Zheng, and Peng (2018) found a positive association between the use of the English language, vocabulary, and reading comprehension. The ten-month longitudinal study involved 170 adolescents in Grade 7 whose home language

was Mandarin with English as their second language. Students were placed into four different groups and instructed by two trained teachers. The highest correlation between language use and reading comprehension was found between English-English speaking groups and the lowest correlation was observed between Chinese-Chinese speaking students.

Results of a linear regression model showed that exposure to the use of the English language benefited vocabulary development. English-English language exposure, not English-Mandarin had the highest association between vocabulary used and reading comprehension. According to their findings, when students use one language in their environment, their reading comprehension is better than those who were exposed to other languages. The current study used a correlation design and apart from English, it considered patterns in the use of Kiswahili and Mother tongue among pupils. What the study left unexplored is the possible outcome of a study where pupils have a third language. This study provided evidence from a non-experimental research design and contributes to new research by adding context where language is used and analyzed more information on the variable of language use.

In the Netherlands, Van den Bosch, Segers, and Verhoeven, (2019) studied the place of linguistic diversity in the prediction of early reading comprehension among 161 grade 2 children from 13 schools. The study included Turkish-Dutch speaking participants and a section of children who only spoke Dutch at home. Results of regression analysis showed differences in early reading comprehension in relation to the participants' language and ability. This was not

explained by poor decoding but by a possible delay in oral language skills (Melby-Lervåg & Lervåg, 2014). Teachers participated in collecting information on the language background of the children. The data did not include the frequency with which the dual languages were used at home among the bilingual group. This means that it was not easy to determine the more frequent of the two languages they used at home. Although vocabulary was one of the predictors of reading comprehension, it had no relation with the language used by the participants. The unanswered question is whether there is a difference in reading comprehension among pupils who speak more than two languages and who read in English not Dutch.

According to Kioko (2013) language use is an important matter in education because the average educated Kenyan uses at least three languages namely English, Kiswahili, and Mother tongue. For many pupils, English has little or no social use outside school. It is used by pupils in class for asking questions and responding to teachers' questions. In a study on oral reading fluency and comprehension, Piper, Schroeder, and Trudell (2016) found that oral reading fluency in the participants' first language predicted reading comprehension in the second language. The study collected data from 2,000 pupils in grades 1-3 by using a criterion-referenced instrument with measures for reading fluency and comprehension. The reading comprehension scores were highest for text written in Mother tongue and lowest for English text. Reading scores were highest for oral reading fluency in English and these findings were explained by the fact the

children appeared to recognize English words with ease even when they did not understand much of the written text.

For varied and valid reasons, many parents do not reinforce the use of English at home. Despite this reality, many parents still prefer their children to learn and use the English language. In her descriptive survey design study on the influence of family background on pre-school children's English language, Mokua (2014) reported a disparity between the language in which parents wanted their children to become proficient and the language they spoke with their children at home. The study was done in Kajiado District, Kenya, and had a purposive sample consisting of 1 Head teacher, 20 pupils, and 2 teachers. Although 95% of parents interviewed wanted their children to be proficient in English none of them spoke in English with their children. Parents' view on their children's performance in reading English was collected by an interview guide and 85% of the parents said they mostly used Kiswahili when speaking with their children. The researcher did not study the relationship between language use and reading but recommended that future studies should consider the differences in language use as factors that could influence reading achievement in English among public primary school pupils in Kenya. It was also recommended that an exploration of home and school-based factors that influence reading in the English language needs to be done. These recommendations were considered in the present study which looked at language use as a predictor of reading fluency and text comprehension among class 4 pupils.

In a study on school language policy's influence on performance in English language among secondary school pupils, Kibet (2014) found that performance in English was influenced by school language policies. The descriptive survey conducted in Buuri District used the stratified random sample to obtain three schools. One of the schools was a mixed public secondary school while the others were a girls and boys school respectively. A sample of 141 students, 7 teachers, and heads of the languages department participated in the study. The researcher found that there were specific days when students were permitted to use English and other days were for Kiswahili. Descriptive analysis revealed that 71% of the respondents agreed that the languages they use in school affected their performance in the English language which examines English grammar and text comprehension. Speaking frequency in a language other than English by both teacher and pupils affected students writing in English. Although the study found that the use of Mother tongue and Kiswahili affected English performance, it did not consider students' oral reading fluency. The study was descriptive, meaning that a predictive relationship between language use and reading fluency, and text comprehension could not be established. The current study expands knowledge on the relationship between language use and text comprehension by studying the relationship between language use among primary school pupils from a different county in Kenya. This context was not represented in the study.

2.4 Relationship between Literacy Environment and Reading Fluency

Van Bergen, van Zuijen, Bishop, and de Jong's (2017) study in the Netherlands looked at the influence of parental education, shared reading, and access to books on the reading fluency of children from 101 families. The participants in the study were 70 girls aged 10 years who were native Dutch speakers. Measures for home literacy environment included parents reading fluency, access to books, and the presence of magazines and newspapers in the home. A hierarchical regression model controlled for parents' reading fluency and results showed that books at home predicted 13% variance in reading fluency. The reading fluency of both parents explained 17% of the reading fluency of the children. Their study only selected one gender as it did not include boys. The current study sought to bridge the gap by also studying gender differences in reading outcomes. It was conducted with a more representative sample of school-going children including both boys and girls. It looked at similar measures of literacy environment albeit in a different context.

Ogetange's (2018) study in Kisii County, Kenya investigated the school literacy environment in relation to the reading skills of pupils in classes 1-3. Public primary schools were selected for the study. All pupils in the 23 schools and their teachers and heads of the school formed the study sample of 970. The study adopted a mixed-method design. A questionnaire, interview guide, observation checklist, and a reading test were used to collect data. Reading skills assessed included vocabulary, reading fluency, and comprehension. School environment variables considered the physical facilities in the school which were assessed by

the teacher on a rating scale as either good, average, or poor. Analysis of variance affirmed that the school literacy environment statistically and significantly influenced reading skills. The study did not answer the question of association or correlation between the study variables but rather provided a descriptive analysis of what was found in lower primary schools. The current study sought to give further information by examining whether the literacy environment could be a significant predictor of reading fluency.

Opiyo's (2017) study on the relationship between home literacy environment and development of early literacy among 3-4-year-old preschoolers in Kakamega County, Kenya found that the availability of literacy resources at home and home literacy practice predict an early reading of young readers. The correlation study used a stratified, purposive, and simple random sample to obtain participants who included 72 children and 24 preschool teachers from 24 schools. Questionnaire and focus groups were used to collect data. The study employed Pearson Product Moment Correlation to determine the relationship between study variables, ANOVA for mean differences, and Multiple Linear Regression for predicting emergent literacy. The study found that the social support of caregivers encouraged early reading. Such homes also provided a more stimulating home literacy environment. Like many studies that look at the relationship between literacy environment and reading, the subjects of the study were preschool children.

Using a survey design study, Wang'eri and Mugambi (2014) explored both home and school literacy environments in relation to class three pupils reading

achievement. In their study of home literacy environment, the researchers used literacy indicators such as the number of children's books in the home and frequency of parents reading to children to measure literacy levels. The study obtained a sample using the purposive sampling method to obtain 108 public primary pupils and 162 pupils from private schools in the Kiuu sub-location, Kiambu County, Kenya. The researchers used the chi-square to determine relationships between the study variables and found differences in reading fluency between pupils in private and public schools. Pupils from private schools, where reading resources were more available, had better reading fluency in English and Kiswahili compared to learners from public schools. It was not clear whether differences in reading fluency would also be observable among pupils from public primary schools in Busia County, Kenya.

2.5 Relationship between Literacy Environment and Text Comprehension

In China, Zhang, Inoue, Shu, and Georgiou (2020) examined the effect of different aspects of the Home Literacy Environment namely, "formal literacy experiences, informal literacy experiences, and access to literacy resources'' on reading comprehension in Chinese. The study sample consisted of 70 girls and 89 boys in kindergarten who were assessed on word reading and reading comprehension in second grade. Questionnaires were filled out by the parents of the children who provided data on the frequency of home literacy activities. Analysis from structural equation modeling indicated that reading comprehension results could be predicted by formal literacy experiences at home but informal literacy experiences did not predict reading outcomes. The current

study measures text comprehension in a different language and extends the literacy experiences of the participants by including the school literacy environment which is also an important factor that influences reading outcomes.

Strasser, Vergara, and Del Río's (2017) also conducted a study in Chile but with a lesser number of participants. Using 281 upper-middle-class Chilean students, researchers examined whether children's book exposure contributed to their expressive vocabulary, listening and reading comprehension, and word reading. With first-grade outcomes controlled statistically, book exposure directly affected all first-grade outcomes but had no direct effect on second-grade reading comprehension. The study did not capture information on reading assistance available at home nor consider school resources as important factors in explaining reading outcomes. The sample was also drawn from a very different cultural and social context from the Kenyan one where the current study was conducted. The study focused on upper-middle-class students also made the sample narrow and non-representative by leaving out those who may attend schools that might not have rich literacy resources.

In a descriptive study on the perceived home literacy experiences and reading comprehension among Brazilian adolescents from Rio de Janeiro, Baltar and da Mota (2016) found that there was a significant positive correlation between home literacy experiences as recalled by the students and their reading comprehension. The study that was carried out among 31 boys and girls aged 15-22 years found a significant positive relationship between early home literacy experiences and students' current performance in reading. Students who reported

higher home literacy experiences had fewer reading errors. Those that reported enjoying reading had more books than those who did not. The participants may not have been precise in their recall of earlier home literacy experiences since some were as old as 22 years. The present study required learners to report their present home literacy experiences and the data collected was more reliable as they did not rely on long-term memory in their responses.

Yeung and King's (2015) study on home literacy environment and English language and literacy skills among young Chinese children found that certain literacy practices carried out at home have a strong association with reading. In their study of 90 children in kindergarten, the researchers assessed English vocabulary, reading, and knowledge of letters. Shared reading between parents and children predicted the children's reading of English words. Results also showed that exposure to print in English predicted vocabulary expression among the children. Data on the children's home literacy environment was collected using questionnaires given to parents who reported the literacy practices that they employed at home. The present study is different since it employed the self-report of grade 4 pupils who were day scholars to identify reading resources that were present at home and explore the type of literacy experience they experienced first-hand at home.

Studies have also been conducted in Africa on the relationship between literacy environment and text comprehension. In the Ondo State of Nigeria, Iroegbu and Margaret (2019) conducted a quasi-experiment among 77 lower primary schools. The reading skills that were tested included measures of vocabulary

development, comprehension, and writing. Findings from the pre and post-test analyzed by Analysis of Covariance (ANCOVA) showed that the use of instructional graphics in the classroom had no significant effect on pupils' reading scores. The effect of instructional graphics on reading was greater than that of conventional teaching strategy. There was no significant relationship between classroom labeling and reading skills meaning that a print-rich environment does not automatically correlate with reading comprehension of pupils and meaningful interaction with print would be necessary. Though the study had interesting findings, it only considered the classroom literacy environment and left the home environment which is part of the pupils' literacy environment.

In a study carried out in public rural schools of Narok County Kenya, Mwoma (2017) looked at the reading ability of 94 boys and 94 girls in class 3. A mixed-method design was employed and quantitative data were obtained from the Early Grade Reading Assessment survey 2014 tool. There were 66 teachers, 18 head-teachers, and 5 education officers in the study sample. Pupils were interviewed about their home environment while teachers were interviewed on school-related factors that could influence reading in English and Kiswahili. Bivariate regression analysis revealed a higher relationship between the presence of textbooks in English and reading ability than the presence of books in Kiswahili text and reading. The presence of other reading materials at home was correlated with reading ability. In the school environment, educators who were interviewed mentioned that having learning materials such as charts, text books enhanced

reading among children. Other factors associated with reading comprehension included parents' provision of books, teachers' teaching methods, and their relationship with the children. Similarly, the present study looked at the presence of reading resources in relation to reading and went further to explore the nature of reading support.

Pupils from a poor home environment would not necessarily be poor readers when schools have a rich literacy environment. Schools provide an opportunity for reading through the provision and access of trained teachers who enhance pupils' literary experience through varied learning activities. Piper, Zuilkowski, and Mugenda (2014) found that there were significant improvements in oral reading fluency and reading comprehension in English and Kiswahili when pupils were provided with reading material and had time for reading in school. The findings implied that provisions of reading resources and intervention in the school environment are important for gains in reading achievement. A more current study was deemed useful to find whether the findings would be similar.

2.6 Relationship among Language Use, Literacy Environment, and Reading Fluency

Ganeb and Morales (2018) purposefully sampled 30 pupils in their third grade in public schools in the Philippines and tested their reading speed, word recognition, and their reading prosody in science subjects. A mixed-method research design was used in the study that investigated reading fluency using a science text in the English language. Transcript analysis described 86% of the pupils as frustrated readers who struggled with word recognition. The study did

not go beyond the identification of non-readers to find any association between non-reading and reading resources and support at home or school. The results of the study singled out participants who only spoke Filipino at home, unlike the Kenyan sample that have multiple languages used in homes. Unlike their study that focused on Science reading fluency, this study investigated reading in English which is the language for learning from the 4th grade.

Earlier studies by Farver, Xu, Lonigan, Eppe (2013) investigated the relationship between literacy skills and home language of 392 Latino preschool children (211 boys and 181 girls). The study was carried out in Los Angeles, California, where mothers were interviewed and tallies on home resources were done. Home literacy was measured by the presence of reading resources and language used by children was English and Spanish. Structural equation modeling revealed that homes where literacy-related activities were in Spanish, had a negative correlation with children's oral English language. Sibling-child reading and reading resources found in the home were however associated with English oral language. The study only focused on the home context whereas, in the present study, school context was examined and deemed important for school-going children. The study participants were preschoolers who were only learning to read. The question of the relationship between language use and literacy environment on reading fluency was still unanswered and required investigation.

In East Africa, Oketch et. al (2014) conducted a randomised controlled trial among 13,944 children between grades 1-3 from 229 schools. The study that included 106 parents was conducted in districts in Kwale and Kinango in Kenya,

and in Eastern Uganda too. Children in the study sample came from areas of poor literacy levels and used Kiswahili and Langi respectively. Parents obtained books, told stories, and read to their children, while teachers in the treatment schools were trained and given reading resources. Data analysis using both regression analysis and ANOVA determined that differences in language use among children explained reading scores. In the Ugandan sample where children used the same language at school and home, reading scores were better scored than those from the Kenyan sample. There was a significant interaction effect for oral literacy following changes in classroom characteristics particularly with the provision of story books.

The impact of the intervention on oral literacy was higher in Uganda (18%) than in Kenya (8%). Although Kiswahili was used in Kwale as the language for assessment it was not the participants' home language. Regardless of the language used by the study subjects, home characteristics were associated with reading ability and literacy-related activities. The findings would appear to confirm the need to use mother tongue in early literacy instruction. The study design had an attrition challenge which is overcome in the present study which was done at the same time.

Language exposure for school-going children affects their language use and there is limited empirical evidence that examines the place of both language use and reading literacy environment in promoting reading ability. Although studies have previously been done including all three variables the interaction between language use, literacy environment, and reading fluency has been excluded. The

lack of studies on home literacy environment and literacy skills of children from linguistically diverse backgrounds prompts further study on the interaction of language use and literacy environment in predicting fluency and text comprehension.

2.7 Relationship among Language Use, Literacy Environment, and Text Comprehension

Environments where pupils explore books of various genres, teachers read to pupils and pupils' conversations are held in the language that learners use most, are practices that help pupils comprehend text (Zimmermann, 2014). Pupils often recognize written words in their oral vocabulary and those with good vocabulary are often at an advantage because they know the meanings of words which assist in explaining the context to them. The home environment remains a significant contributor to language ability since it supports children's use of language and comprehension.

For many dual-language users, English influence comes about through interaction with lessons, peers, and teachers in school. According to research by Relyea, Zhang, Liu, and Lopez Wui (2020), results of confirmatory factor analysis revealed that language used at home and literacy environment had no significant direct effect on English reading comprehension. The research explored the literacy environment and home language of emerging bilinguals in their 4th and 5th grade of school.

The interaction between home and school language disconnection and disadvantaged literacy environment is unclear (Nag, Vagh, Dulay & Snowling,

2019). Their review of literature based on the examination of several studies on the relationship between Home Language and Literacy Environment (HLLE) and reading revealed that there are differences in reading among children in multilingual families much more than in monolingual families. Children who come from a language-rich literate background appreciate reading and writing and have a vocabulary advantage over those who come from homes where the home language is disconnected from school. Research shows that children are advantaged when they learn a language they use at home but are disadvantaged in reading skills that are associated with text comprehension when the language is disconnected (Melby-Lervag & Lervag, 2014).

Using an ex-post facto design, Adekola, Lawal, and Ibrahim (2018) conducted a study on academic achievement in reading English comprehension among 400 students from eight secondary schools in Ijebu-North and Ijebu-Ode areas in Ogun State, Nigeria. A multi-stage random sampling method was employed to select an equal number of boys and girls. The study examined the role of the school learning environment and the use of mother tongue in predicting the reading comprehension of secondary school students. Results of multiple regression analysis showed that the use of mother tongue and the students learning environment significantly predicted achievement in English reading comprehension. The study addresses the use of one language and does not specify the context in which the language is used. The current study tries to answer the question of reading comprehension of a transition class in that it is starting to learn in English after three years of learning the language as a subject.

Lewis, Sandilos, Hammer, Sawyer, and Mendez (2016) in a study on the relationship between home language and literacy environment and children's language abilities explored participants' expressive vocabulary and oral comprehension in Spanish and English. The longitudinal study among 93 bilingual mothers residing in the state of Pennsylvania used data from mothers of elementary school children. Study findings showed that mothers' language influenced Spanish language ability but the frequency of storytelling was positively related to English oral language. The children's rich language was a result of hearing words read from a story. They also found that 60% of the participants in the study spoke more English than Spanish with their mothers. The use of English at home supported their language ability in the same language. Literacy experiences in storytelling were related to the children's vocabulary. The study used a sample of preschoolers with limited language exposure and focused on the language used with the mother. The current study extends the exploration of pupils' language use to include father, siblings, teachers, and classmates. The current study was able to analyse the association between the language used in varied contexts and text comprehension.

An earlier study in Kenya by Wang'eri and Mugambi (2014) investigated the influence of home and school factors on the reading achievement of class 3 pupils. Although the study identified languages pupils use at home and school, the variable of language use was studied as an independent variable and the possible interaction between language use and literacy environment was left unexplored. The current study expands the information in the study area by

examining whether there was an interaction between language use and literacy environment on reading comprehension and reading fluency of class 4 pupils.

2.8 Gender and Reading Fluency

Namaziandost, Fadhly, and Silihat (2019) investigated the difference in reading fluency in English among 17-21-year-old students from Iran. The sample in the research consisted of 20 males and a similar number of females. The participants were drawn from a private language institute and were required to read two passages from the Oxford Placement test before their voice recordings were taken to measure reading fluency. Independent t-test indicated that females were better at English reading fluency than males. The researcher explained this to be due to women's natural ability to process language and their higher interest in language speaking and reading (Nasri & Namaziandost, 2019; Abedi, Keshmirshekan, & Namaziandost, 2019). Although the study provided evidence of gender difference and reading fluency, the participants were of a higher level of education and may have been exposed to the English language for a longer time. This study will attempt to answer how these results compare with those of grade 4 boys and girls who have been taught and learned the English language as a subject during their first three years in school.

In Tharaka Nithi County, Kenya; Kainyu (2017) conducted research on reading in English among class 4 learners in selected schools. It was reported that although boys who participated in the study were slower than girls in sound identification, they appeared to understand what they read much better than girls. The qualitative research study which was conducted among 40 class 3 pupils,

used EGRA sub-tasks to assess the respondents' reading skills. Although the study showed reading fluency in favour of boys, it could not determine whether the difference in reading fluency between boys and girls was statistically significant. The present study used a t-test to determine whether there was a statistically significant difference in reading fluency between boys and girls.

Findings on the relationship between gender and reading fluency have been inconsistent. Mwoma (2017) assessed reading fluency and comprehension in Kiswahili and English among class 3 pupils in public schools in Narok County, Kenya. The study found that boys were better than girls in reading fluency and comprehension. The mixed-method research measured the presence of reading materials at home and school and also investigated the support of parents and teachers. Evidence from the study pointed at Grade 3 boys posting higher mean scores in reading than girls. The current study endeavored to find out whether similar results could be reported in Busia County, Kenya

The 6th learning assessment by Uwezo (2016) on reading literacy assessment among 130,653 children from 69,183 households in Kenya in 2015 also reported that girls were better in reading fluency than boys. These findings from an analysis of data collected from over 13,000 children from each of the 47 counties in Kenya reported that the gap in reading fluency was smaller in higher classes than in the lower classes. Unlike the house-hold based assessment UWEZO study, the context in the current study is the school. The grade 4 boys and girls are also older than the boys and girls in class 3 in the study. It was deemed important to see whether the results would hold for this sample too.

Earlier studies by Wang'eri and Mugambi (2014) examined home and school factors in relation to the reading achievement of grade 3 pupils in Kiambu County, Kenya. The survey research design involved 53 boys and 53 girls from public schools and 162 boys and girls from 2 private schools. Results of the Mann-Whitney test of group comparison showed that girls were better than boys in English and Kiswahili reading fluency. The girls' mean scores for words read per minute were higher than those of the boys.

2.9 Gender and Text Comprehension

An experimental research design study in Malaysia by Nero and Zulkiply (2020) examined the effects of gender among other reading mediums on the reading comprehension of 40 undergraduate students. Participants read two texts in digital and print formats before a two-way mixed ANOVA statistical test was used in data analysis. Findings showed that although the mean scores obtained by females were slightly higher than that of males, the differences in reading comprehension between males and females were not statistically significant.

Price-Mohr and Price (2017) also reported a difference in text comprehension between boys and girls but the difference was also not statistically significant. This was after an independent samples t-test for each of the measures and reading progress was analysed. The study was carried out among 372 children aged 4-5 years who were selected from 16 schools in England. The mean scores for reading comprehension were obtained using standardised measures including the British Picture Vocabulary Scale and Passage Reading Comprehension. Due to attrition, some of the data from participants was not available for use in the post-

test. The research design weakness was overcome in the current study where data was collected at one time. The researchers were still able to determine differences in gender regarding reading preferences where they observed that 'real books' aided boys reading behavior more than girls.

Baye and Monseur (2016) analyzed data collected over ten years from the International Association for the Evaluation of Educational Achievement (IEA) and the Programme for International Student Assessment (PISA) on reading achievement among primary grade 4 pupils. Findings from different nations between 1995 and 2015 showed gender differences in reading. The results varied depending on students' educational levels, proficiency, and content area. Although the data is wide in coverage, it excluded most African countries including Kenya, meaning it showed bias in representation. The difference in reading comprehension between girls and boys was not statistically significant and the reading scores in the home language context showed girls were ahead of the boys in reading comprehension. To the knowledge of the researcher, no recent studies have been conducted on gender differences in reading comprehension and reading fluency among class 4 pupils in Busia County, Kenya. The results of the current study would show whether a reading comprehension gap exists between boys and girls and whether this gap is significant.

Even when reading is done using interventions like digital books, the gender gap still appears resistant to novel reading tools. In a series of experiments in Malawi on the use of digital devices to support reading, Erling, Adinolfi, Hultgren,

Buckler, and Mukorera (2016) found that when typical pedagogy was employed, gender differences occurred in favour of girls. However, boys performed as well as girls when they used interactive digital applications. The current study measured reading of the text in print which is the familiar format of reading for boys and girls in public schools in Kenya. The study did not manipulate any variables and investigated the relationship between gender and reading fluency as they occur naturally.

In South Africa, Cekiso (2016) studied the difference in reading comprehension of grade 3 learners from rural schools in the Eastern Cape of South Africa. A convenience sample of 49 boys and 46 girls from one school participated in the study. They were tested in reading in both English and IsiXhosa. Convenience sampling makes it difficult to generalize study findings to a larger population. It is, therefore, possible that the sampling method introduced bias into the study because the participants involved were those that were easily accessible. A t-test for mean differences showed no mean differences between genders in reading IsiXhosa. However, there was a significant gender difference in English reading comprehension where girls obtained better scores than boys. The current study did not test reading in mother tongue because in Busia County there are diverse languages used in the community. These include the different Luhya dialects, Iteso, and other languages spoken in Kenya and Uganda. The current study was interested in furthering research in reading in English and tested reading in the same language.

In Kenya, Mwoma (2017) conducted a study in Narok County among class 3 pupils from rural public primary schools. The study which tested reading in both English and Kiswahili used the Early Grade Reading Assessment tool. A t-test was conducted to determine gender differences in reading comprehension among the 94 boys and 94 girls who were selected through a systematic random sampling technique. The results of the study reported a gender difference where boys performed better than girls in reading and sentence comprehension in English. The difference in performance was not statistically significant. In Kiswahili comprehension, boys excelled in all subtasks of comprehension compared to girls. There was a statistically significant difference in listening comprehension between boys and girls. The current study used a broader sample of 388 pupils and may have been more representative than the narrow sample in the stated study.

2.10 Summary of Literature Reviewed and Gap Identification

Reviewed literature shows that studies have been done on the relationship between language use and reading achievement. However, these studies have largely been carried out in developed nations like the USA, Netherlands, and China. Studies reviewed from developed nations drew their samples from bilingual Spanish-English, Dutch-non-Dutch, and Mandarin-English participants. The current study focused on pupils who are exposed to Mother tongue, English and Kiswahili at varied levels. Fewer studies have been done among class 4 pupils in Kenya. The present study was done in the developing nation of Kenya in different socio-cultural contexts. The studies reviewed are

based on ethnographic, longitudinal, and quasi-experimental research designs. Ethnographic studies may be subjective while longitudinal design studies risk attrition of subjects. The current research design had a more intact set of participants to the conclusion of the study.

Studies in Kenya on reading were largely conducted among pupils in elementary school and class three. These children are in the pre-operational level of cognitive development while class 4 pupils being older, have a higher level of cognition. Findings on the relationship between language use and reading fluency, and language use and text comprehension are not many therefore it is hoped that this study will add to the existing literature in the study area.

Research indicates that rich literacy environments support reading and that provision of books alone may not necessarily result in improvement in reading achievement. This implies that a richly resourced environment alone would not support reading among pupils. Findings on gender differences in reading are inconsistent. It was hoped that findings from this study would help fill the identified gaps in reading research and give guidance on how home and school factors support reading in English. In this period of national bilingual education policy, the study may provide further insight in establishing the place of language use in pupils' reading achievement.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the research design, methodology, research variables, and location of the study. It also describes the target population, sample size, sampling technique, research instruments, data collection and analysis techniques, pilot study, and the logistical and ethical considerations of the study.

3.2 Research Design

The research design was correlational. Frankel, Wallen, and Hyun (2015) state that a correlational design describes the degree to which two or more variables are related. Correlation seeks to investigate possible relationships among variables in a study without intervention. It suggests associations by defining the direction, strength, or form of relationships and can be used where a study aims to predict an outcome based on information on another variable. This research design does not establish causality in relationships.

A correlational research design was adopted because it was appropriate for this study that sought to identify the relationship between language use and reading fluency, language use and text comprehension, literacy environment and reading fluency, literacy environment, and text comprehension, and interaction between the independent variables and reading outcomes.

3.3 Research Variables

The predictor variables in this study were language use and literacy environment which were measured as categorical variables. Language use was measured at three levels namely; Kiswahili, mother tongue, and English while literacy environment was measured for home and school contexts. The contribution of gender to the outcome variable is also studied. Reading fluency and Text Comprehension were the outcome variables and were measured at an interval measurement scale.

3.4 Location of the Study

The study was carried out in Busia County, Kenya with an area of 1,628 km2and is located to the West of Kenya and bordering Uganda to the west, Bungoma County to the North, and Lake Victoria to the South. It has seven sub-counties namely Matayos, Nambale, Teso North, Teso South, Butula, Funyula and Budalangi. Busia is representative of a location where language use for pupils oscillates between Mother tongue, English, and Kiswahili and is representative of the complex language situation in a classroom for pupils exposed to language at different levels. Busia County has 427 primary schools 404 of these are mixed public schools (MOEST Public Primary Education Statistics, 2016). It is a significant location since it has had a prevalent problem of low reading achievement among public primary school pupils. It recorded a reading score below the national reading average in a Kenyan sample with 25.9% class 3 able to do class 2 reading which means that about 74% of the pupils join class 4 reading below their grade level (Uwezo, 2016). These results showed low

reading comprehension in the region with the county ranked 27 out of 47 in the combined assessment in English and Kiswahili. Research on language use and literacy environment among class four pupils in Busia County is also scarce.

3.5 Target Population

The target population was all class four pupils attending primary schools in Busia County. According to statistics from the Busia County's Education office 2017, there were 3,023 boys and 2,978 girls in class four who attended 404 mixed public primary schools. These are children aged on average between 10-12 years old. They were selected for having completed three consecutive years of public primary school education and using English, mother tongue, and Kiswahili with varying proficiency levels. They have increased access to reading material and in class four, they are expected to read to learn. Language use may be regulated and pupils in class 4 pupils may be punished for using a language other than English or Kiswahili in school. Reading fluency and text comprehension studies in the County are usually not conducted among class four pupils. English language teachers were also a target population and were instrumental in providing additional information on pupils' classroom literacy experiences and language use that would explain the findings. To control for confounding variables, the participation was restricted to pupils who have been in primary school for 3 years and whose age was between +1 or -1 of the average age of 10 years old. This was done to avoid the effect of maturation and reduce the risk of differences in exposure to varied literacy experiences.

3.6 Sampling Techniques and Sample Size Determination

3.6.1 Sampling Techniques

A stratified random sampling technique was used to select a school from each of the seven administrative sub-counties of Busia County, Kenya. This sampling technique provides rich data from diverse geographical and socio-economic compositions and is ideal when dealing with populations that are not uniform (Kabir, 2016). Busia County primary schools are distributed into sub-counties with different administrative zones. These zones hold differing 5 subgroups of the Luhya language and two zones cover Nilotic Iteso. Some of these schools may have been omitted from the study altogether if another sampling technique was employed. A simple random sampling technique was used to select seven public coeducational schools. This ensured each participating school had an equal chance of selection (Cohen et al., 2017).

To achieve this, each of the 404 schools had an identification number which was entered into an online random generator of numbers. Without any duplicates allowed, seven numbers were randomly selected from a range of numbers from 1-404. The corresponding school in the selected sub-county was selected to participate in the study. The criterion for school selection was that the school was co-educational and had pupils from class 1 up to class 8. In each school, a cluster of class four pupils was selected as participants in the study. The sampling technique used was similar to the sampling design applied in the Progress in International Reading Literacy Studies of 2016, 2011, and 2006 of reading comprehension among fourth graders. Their studies used a two-stage

stratified cluster sample in the study of grade 3 and 4 pupils' reading achievement. The technique according to the users proved to have a minimal burden on students, teachers, and pupils. It employed a sample of schools and then one or more intact classes of students in each sampled school (LaRoche, Joncas & Foy, 2017). Teachers who teach the English language to class four pupils were purposively selected to participate in the study. Seven schools were selected from mixed public primary schools in the county.

3.6.2 Sample Size

A sample size of 375 was determined by Yamane's formula.

$$n = N/ \{1 + N (e^2)\}$$

N is the population size and **e** is the level of precision. This formula was preferred because of the need to arrive at a sample size from a finite population. This sample size falls in the same range as determined when using published tables. The number of surveys can be larger than required for a desired level of precision and 200-500 subjects would be good for carrying out multiple regression analysis. In this study, a total of 397 respondents were sampled for the study and these consisted of 388 pupils and 9 teachers. Table 3.1 shows a sampling frame.

Table 3.1

Sample and Sampling Frame

Category of Population	Population	Number of Respondents	Sampling Design
Mixed Public Primary schools	404	7	Stratified Random sampling
Class 4 pupils	5,991	388	Cluster sampling
Class 4 English Teachers	432	9	Purposive sampling

Source: County Education Office, Busia, Kenya

3.7 Research Instruments

The research instruments used in the study were questionnaires, an observation checklist, and a reading test.

3.7.1 Language Use Instrument

This is a two-part instrument developed by the researcher. The language use instrument was designed to identify pupils' language use in diverse situations. It was not designed to explore the quality of language but its frequency. Part I of the instrument obtained information on pupils' demographic characteristics. Part II obtained information on their language use in different situations. It had 18 items where pupils were required to tick in an appropriate box indicating the language they used with a given person (s) at home and school. The most frequently ticked language was deemed to be the language respondents used the most. The languages are Kiswahili, Mother Tongue, and English.

3.7.2 Literacy Environment Instrument

This is a two-part instrument that examined the availability of reading resources at home and the nature of support pupils received when reading.

a. Home Reading Resources Questionnaire

Informed by instruments previously developed to measure home literacy environment by Martin (2006), the researcher developed a 7-item checklist of reading resources in the home environment. Pupils put a tick to indicate the presence of specified reading resources at home. They then answered questions on reading and reading support they received at home.

b. Observation Checklist for School Reading Resources

An observation checklist was used by the researcher to obtain information on reading resources available in the school. The researcher observed the classroom physical environment and looked for literacy items such as books or pupils' work on display, posters, among other print materials, were present in the classroom. A tick was placed beside items that were present. Observations were also made on the physical classroom environment in relation to the school literacy environment.

3.7.3 Questionnaire for Teachers

The questionnaire was used to collect demographic information on class 4 teachers of English and to determine the frequency with which pupils were engaged in specific literacy-related experiences rated on a 5-point Likert-type

scale. Teachers assessed ten items comprised of statements with a focus on pupils' classroom literacy experience. The items on pupils' classroom experience were guided by research-based principles for improving reading achievement (Creemers & Kyriakides, 2008). Items included 'pupils listen to the teacher read aloud passages from a book' and 'pupils read independently daily'. Teachers gave responses choosing from one of these possible responses 1=Always, 2=Often, 3=Unsure, 4=Rarely, and 5=Never.

The questionnaire was pretested during the pilot stage of this study. An item which read 'I take advantage of bilingualism to help learners read in the English language' was reworded to focus on the pupils and read 'pupils are occasionally allowed to use Kiswahili or Mother Tongue in the classroom. Content validity of the instrument was ensured through consultation with experts within the Department of Educational Psychology who helped review the items with the study objectives. Items that were considered appropriately focused on the reading experience pupils receive in the classroom were retained. A face-to-face interview was also conducted with the teachers using open-ended questions to help understand the environment in which pupils read.

3.7.4 Reading Test for Pupils

Reading fluency tests are a popular means by which accuracy and reading rate are measured. A fluent reader reads out a written text accurately at a natural speed (DiSalle & Rasinski, 2017). The reading test consisted of a reading passage and a reading comprehension test in English. The test examined the oral reading skills of the pupils by looking at their ability to accurately read words

written in English. It also measured their ability to make inferences about the text they read. The test conforms with the Kenya Institute of Curriculum (KICD) curriculum design outline on what is required in fluency and comprehension of learners at this level. The test was conducted in a quiet location within the respective selected schools. The test was administered by the researcher who was assisted by two trained research assistants. The reading was done singularly, repeatedly, and orally before the researcher or one of the trained assistant researchers, and reading fluency was determined by the average number of correctly read words in one minute. Studies on reading fluency have used 45-60 correctly read words in 60 seconds as the standard level of reading fluency for pupils up to class 3. After oral reading of the passage, pupils then went to class to silently read the same passage before they answered short comprehension questions in writing.

3.8 Pilot Study

A pilot study was carried out on a random sample of 30 class 4 pupils (15 girls and 15 boys) from a non-participating public school in Busia County. The purpose of the pilot study was to pre-test the instruments of data collection, determine the approximate duration for the study and improve the study design.

The researcher was keen to find out whether class 4 pupils would be able to perform the tasks required of them. The researcher was oftentimes situated close to respondents observing them complete the questionnaire. This was important for identifying potential problem questions. It also helped discover respondents' interpretation of questions through their responses. After the session, the

researcher collected the instrument and sought immediate verbal feedback from the respondents about the exercise's level of difficulty. There was no immediate expression of difficulty in filling in the questionnaires.

Questionnaires on literacy environment and language use were pre-tested to ensure clarity of instructions and items and to determine the validity and reliability of research instruments. The original questionnaire in-home literacy for example had asked about the presence of 'comics' at home. This item was discarded since many pupils did not seem to know what these were. The original teachers' questionnaire had three responses 'always', 'sometimes', and 'never' and two more response options were added to improve discrimination of responses. The revised teacher's questionnaire had five possible responses which were 'Never', 'Rarely', 'Unsure', 'Often', and 'Always'. Statements were also reworded so that the focus moved to the pupil's observed classroom behaviour. For example, the statement 'I read aloud to pupils' was reworded to 'Pupils listen to passages read aloud to them'. Finally, the statement "My pupils have many reading opportunities" was changed to read "Pupils do not have many reading opportunities".

The piloting added value to the study in that it helped determine the time needed for carrying out the exercise which was determined to be 90 minutes. This would have been longer without the involvement of two trained research assistants who helped take individual reading scores of approximately a third of the pupil respondents. The exercise also provided research assistants an opportunity to see

the instruments in use before the main study. Finally piloting helped establish the level of agreeability between the scorers of the reading tests.

3.9 Validity of the Research Instruments

The story format is recognised in reading studies as a valid way of testing reading. Stories in writing are extensively used in the pupils' classroom experience. This established the instrument's face validity. The reading passage developed by the researcher was approved by four class 4 teachers and deemed to be class appropriate. Item review helped determine the validity of the observation checklist and ensured items listed for observation were useful for obtaining information on reading resources. To improve on internal validity, more than one method was used for data collection. Response on the questionnaires for pupils was complemented by responses to the same questions asked verbally by the researcher to individual respondents before they took their reading test. Responses to teachers' questionnaires were complemented by interviews. Respondent validation helped check respondents' responses.

3.10 Reliability of the Research Instruments

Instruments were pre-tested during the piloting study to ensure their reliability. For purposes of internal consistency of the research tools, ambiguous questions were refined. Guidance by a reading expert from a primary literacy initiative Tusome meaning "let us read" and an English teacher panel of 3 helped review the items in line with the objective of the study.

To estimate the internal consistency of the instrument, the split-half method was used. Correlation between two forms of the test both equal and unequal was computed and the results are presented in Table 3.2 below.

Table 3.2

Reliability Statistics

Reliability Statistics		
Spearman-Brown Coefficient	Equal Length	.920
	Unequal Length	.920
	Guttman Split-Half Coefficient	.907
Cronbach's Alpha	Part 1 Value .868	
	Part 2 Value .843	

The results of the Guttman Split Half coefficient indicated that two sets of scores had a strong positive correlation and that the instrument was reliable.

Two independent scorers scored the reading test and inter-rater reliability was done to determine agreeability between the scorers. Cronbach's Alpha test coefficient of 0.93 was obtained indicating high agreeability between the raters (Field, 2009).

3.11 Data Collection Procedure

Having obtained permission from school administrators, the students' questionnaire was administered during normal school hours. Instructions were read out loud to the pupils, the correct way of using the response format was demonstrated to them on the chalkboard. This was repeated until the pupils themselves could demonstrate how to respond to items on the chalkboard. Only

then did each pupil respond to the statements in the presence of the researcher and trained research assistants.

The language use questionnaire demanded that the respondents read statements and tick appropriate boxes. Respondents filled in the data fields provided in an open-ended format. Pupils read a passage out loud while the researcher and assistant listened and scored the reading fluency of each pupil. This was repeated for each pupil to obtain an average score. Pupils silently read the same passage before answering five short comprehension questions. Data collection was done by the researcher who clarified any matters arising and ensured that the participants were the actual respondents. The data collection took 90 minutes however the completion time was flexible to permit slower respondents to complete the exercise. With the aid of research assistants, the completed questionnaires were collected by the researcher for analysis.

After the exercise, a face-to-face interview was conducted with teachers as respondents to the questions on classroom literacy practice. The interview was important to understand their responses. These responses were recorded by the researcher who later transcribed the information to identify interrelationships with the studied variables.

The researcher used an observation checklist to determine the visible presence and availability of specific reading resources and to get a view of the classroom literacy environment in general.

3.12 Logistical and Ethical Considerations

The researcher obtained an introductory letter from Kenyatta University's Graduate school and obtained a research permit from the National Council for Science and Technology. The researcher then obtained a letter from the County's Education office allowing her to carry out research in Busia County. Research assistants were informed on the research purpose and trained on how to use the instruments before the pilot study. The purpose of the study was explained to relevant school administration personnel. Permission for study among pupils and teachers was sought from heads of selected schools. Respondents were informed of the purpose of the study and the researcher sought respondents' voluntary consent to participate in the study. The researcher obtained a day, time, and place for the actual administration of research instruments. For anonymity, participants were asked not to write their names on the response sheets. The researcher committed herself to providing the study findings to the respective participants and schools involved in the study.

3.13 Data Analysis

The study employed both quantitative and qualitative data techniques in data analysis. The questionnaire provided both qualitative and quantitative data while an interview schedule and observation provided qualitative data. According to Creswell (2008), qualitative data assists in the understanding of a social problem through the provision of a detailed view of the informant in a natural setting. On the completion of data entry, data cleaning was done to check incorrect entries and possible outliers. Descriptive statistics were used to describe sample

characteristics which included frequencies, percentages, and measures of central such as means and modes. Measures of variability were also presented and these included the range, standard deviation, and shape distribution including skewness and kurtosis.

Inferential statistics were used to test these hypotheses. The following null hypotheses were tested.

H_{01}: Language use does not significantly predict reading fluency. Statistical Test: Multiple linear regression

H_{02}: Language use does not significantly predict text comprehension. Statistical Test: Multiple linear regression

H_{03}: Literacy environment does not significantly predict reading fluency. Statistical Test: Multiple linear Regression

H_{04}: Literacy environment does not significantly predict text comprehension. Statistical Test: Multiple linear Regression

H_{05}: There is no significant interaction effect between language use and literacy environment on reading fluency. Statistical Test: Two-way ANOVA

H_{06}: There is no significant interaction effect between language use and literacy environment on text comprehension. Statistical Test: Two Way ANOVA.

H_{07}: There is no significant gender difference in reading fluency between boys and girls. Statistical Test: Independent T-test.

H_{08}: There is no significant gender difference in text comprehension between boys and girls. Statistical Test: Independent T-test.

Descriptive statistics including frequencies, means, and percentages were presented in tables

CHAPTER FOUR

FINDINGS, INTERPRETATIONS, AND DISCUSSIONS

4.1 Introduction

This chapter presents the study findings, interpretations, and discussions of results in line with the objectives of the research. Demographic data of participants is presented using selected descriptive statistics. The return rate of the research instruments and results are also presented using relevant descriptive statistics for each objective. Inferential statistical analyses used to test the null hypotheses are presented followed by a discussion on the findings.

4.2 General and Demographic Information

This section gives a general overview of the return rate of questionnaires used in the study. It gives general information on the return rate of the research instruments as well as the participants' age, gender, language use, and literacy environment.

4.2.1 Return Rate of the Research Instruments

A total of 394 class 4 pupils in seven public primary schools in Busia County participated in the study that was done in the first term of schooling in March 2018. All questionnaires were collected but at the time of data coding and cleaning, responses from 6 participants were discarded because they had more than 70% of the questions unanswered or appeared to respond in a set pattern. The researcher analysed data from 388 (98.4%) of the respondents. Table 4.1 below provides a summary of the return rate.

Table 4.1

Return Rate of the Research Instruments

Sub-County	Target Return Rate	Actual Return Rate	Percentage
A	44	42	95.4%
B	43	43	100%
C	33	31	93.5%
D	45	44	97.7%
E	43	43	100%
F	91	90	98.9%
G	95	95	100%
Total	394 (100%)	388	(98.4%)

4.2.2 Demographic Data of the Participants

a. Participants' Age

The data were subjected to descriptive analysis to obtain the distribution of the age of the participants. The findings are summarised in Table 4.2.

Table 4.2

Age Distribution of Participants

Min	Max	Mean	Std. Dev	Mode	Sk	Kur
8	16	11.06	1.39	10	.659	.529

Key: Min=Minimum, Max=Maximum, Std. Dev=Standard Deviation, Sk = Skewness, Kur=Kurtosis. Note. *N*=388

The mean age of the participants was 11.06 years (SD = 1. 39) while the modal age was 10 years. The age of the youngest and oldest pupils was 8 and 16 years respectively. The wide range between the oldest and youngest pupils may have implications for the teacher teaching pupils at different levels of maturity. The teacher may need to use a different approach when teaching older pupils in class compared with the younger ones.

b. Participants' Gender

The data were subjected to descriptive analysis to obtain the gender distribution of the participating pupils. The findings are summarised in Table 4.3 below.

Table 4.3

Participants' Gender

Gender	Frequency	Percentage
Girls	197	50.8
Boys	191	49.2
Total	388	100

The sample consisted of 197 girls (50.8%) and 191 boys (49.2%) from seven public mixed primary schools in Busia County, Kenya. The results show that there was a difference of 0.8% between the distribution of boys and girls among the participants and would indicate negligible or no gender disparity.

c. Teachers' Background Information

The data were subjected to descriptive analysis to obtain background information on the teachers. The findings are summarised in Table 4.4.

Table 4.4

Teachers' Background Information

Demographics	Descriptive	Frequency	Percentage
Gender	Male	4	44.4
	Female	5	55.5
Teachers' education level	P1 certificate	5	55.5
	Bachelors' Degree	4	44.4
Number of years in teaching	0-5 years	-	-
	6-10 year	6	66.7
	11-15+ years	3	33.3

Note: N = 9

There were nine teachers in the study, five of whom were female and four male. All the nine teachers who taught class 4 English were trained teachers. Five of the teachers had a P1 certificate while four held a Bachelor's degree. None of the teachers had less than five years of teaching experience. This means the English teachers were trained and experienced teachers.

4.3 Results of the Study

In this subsection, the findings of the study are presented within the relevant objectives of the study. Descriptive statistics are presented here followed by inferential statistics to test the relevant null hypotheses. A discussion of the findings from quantitative and qualitative analyses concludes each section.

4.4 Relationship between Language Use and Reading Fluency

The description and analysis of language use and reading fluency was done followed by hypothesis testing and qualitative analysis of the results. A discussion of the findings is then presented.

a. Description of Pupils' Language Use

The study sought to establish which language is the most used among the respondents and these findings are tabulated in Table 4.5 below.

Table 4.5

Language Use

	Language Use	Frequency	Percentage
Home	Kiswahili	143	36.8
	Mother tongue	235	60.5
	English	10	2.6
School	Kiswahili	306	78.9
	Mother tongue	21	5.3
	English	61	15.8

Note: N = 388

Findings showed that pupils used Kiswahili (78.9%) most while at school. Mother tongue (60.5%) was the most frequently used language at home and it was least used at school (5.3%). More pupils (15.8%) reported using English at school compared to those who used English at home (2.6%).

The findings are similar to a study in Busia among class three pupils by Odima (2015) which reported that English was the language least used by the pupils. This is true in this study in both school and home contexts. In his study, Odima (2015) reported that 78.1% of the pupils in class 3 could not speak English.

Descriptive analysis was conducted to find out how the pupils' reading fluency scores were distributed. The findings are summarised in Table 4.6 below.

Table 4.6

Participants' Reading Fluency Scores

Min	Max	Mean	Standard Deviation	Mode	Skewness	Kurtosis
0	114	47.5	27.88	0	.136	-.527

Note. N=388. Key: Min=Minimum, Max=Maximum.

The majority of the pupils had a score of 0 (zero) on the oral reading fluency test. This means that most pupils in class 4 were non-readers. The mean reading fluency score was 47.5(SD=27.88). The scores distribution was positively skewed as indicated by the value of .136 and they were also spread around the mean which is implied in the negative kurtosis value of -.527 indicating that the curve of the distribution was flatter as compared to the normal distribution curve.

Further analysis to determine the levels of reading fluency in English was done and the results are presented in Table 4.7 below.

Table 4.7

Levels of Reading Fluency

Reading Fluency score	Frequency (%)
0-40	185(47.7)
41-80	77(19.8)
81-120	126(32.5)

The following observations can be made from the results in Table 4.7 and these are that the levels of reading fluency of the pupils were very poor since almost half (47.7%) of the pupils read between 0-40 correct words per minute. This means that most pupils would need a measure of support to improve their oral reading fluency in English.

a. Hypothesis Testing

In line with the first objective of the study, the following null hypothesis was formulated;

H_{01}: Language use does not significantly predict reading fluency.

The variable of interest was reading fluency which measures pupils' timed reading accuracy in English and which is a continuous variable. Language Use is a categorical variable with three possible values labeled English, Kiswahili, and Mother-tongue. Each of these categories or levels was given a number that initially could not be used in linear regression since it had no numerical value. The coded values were changed by creating dummy variables to the categorical variables to assign numerical variables. Each was coded 1 or 0 where 1 falls in the category of interest and 0 assigned to that which did not. Multiple Linear Regression analysis was carried out with language use as the categorical variable and reading fluency as the outcome variable. The results are indicated in Table 4.8.

Table 4.8

ANOVA for Reading Fluency

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	856.08	3	285.362	.365	.778[b]
	Residual	300081.8	384	781.463		
	Total	300937.9	387			

a. Dependent Variable: Reading Fluency
b. Predictors: (Constant), English, mother-tongue, Kiswahili

The regression model found that language use did not significantly predict reading fluency F (3,384) =.365, p>.05.

The coefficients of the linear regression model are presented in Table 4.9.

Table 4.9

Coefficients of Linear Regression of Language Use and Reading Fluency

		Un-standardised Coefficients		Standardised Coefficients	
Model		B	Std. Error	Beta	Sig.
1	(Constant)	64.0	27.9		.02
	English	-18.5	28.4	-.176	.51
	Mother-tongue	-14.7	28.0	-.242	.60
	Kiswahili	-17.0	28.0	-.297	.54

a. Dependent Variable: Reading Fluency

Fitted regression equations for the model were written to predict the values of reading fluency scores for given values of language use using the given constant coefficient of 64. Linear regression equation $\hat{y} = a + bx$ was used to predict reading fluency scores where

$\hat{y}$ = dependent variable;

a = constant or baseline coefficient;

b = coefficient associated with each dummy variable;

x = value given to the independent variable.

The linear regression equation for this model was;

Reading Fluency= 64+ (b x language use).

Predictive reading fluency scores for pupils who indicated the most frequent use of English, Mother tongue, and Kiswahili respectively, are indicated below.

Reading Fluency= 64+ (-18.586 x 1) = 45.414 (English)

Reading Fluency= 64 + (-14.707 x 1) = 49.293 (Mother-tongue)

Reading Fluency =64+ (-17.095 x 1) = 46.905 (Kiswahili)

The model predicted that reading fluency scores were highest among pupils who reportedly used mother tongue most. Mother tongue is largely used at home by pupils and presumed to be the language in which they are most proficient. This proficiency in their home language facilitates learning of subsequent languages. In Busia County, Mother tongue consists of diverse dialects of the Bantu Luhya language and Nilotic Iteso and Luo.

English is a second or third language which the pupils have studied as a subject for 3 years. The use of the English language was singled out for further analysis. The context, and with whom pupils used English was investigated for their

influence if any on pupils reading fluency in English. This was done on the premise that English is the language of instruction and learning at school. Two supplementary hypotheses were advanced for the analysis and these stated;

$H_{01.1}$: There is no significant relationship between English language use at school and reading fluency.

$H_{01.2}$: There is no significant relationship between English language use at home and reading fluency.

i. First Supplementary Hypothesis

$H_{01.1}$: There is no significant relationship between English language use at school and reading fluency.

Multiple linear regression analysis was done using the enter method and ANOVA findings are presented in Table 4.10.

Findings indicated that there was a statistically significant relationship between the use of English language at school and reading fluency, $F(4,383) = 4.44$, $p=.002$. The null hypothesis of no statistically significant relationship between English language use at school and reading fluency in English was rejected and the alternative that states that there is a statistically significant relationship between English language use at school and reading fluency in English was accepted at $p<.05$.

Table 4.10

Coefficients of Regression for English Language Use at School

Model		Un-Standardised Coefficients		Standardised Coefficients	
		B	Std. Error	Beta	Sig.
1	(Constant)	46.5	1.74		.000
	English with teacher	11.1	3.17	.186	.00
	English with classmates	-5.9	4.87	-.068	.22
	English with school workers	-8.8	4.27	-.112	.04
	English with playmates	-3.6	4.47	-.044	.41

Note. N=388. R=.211 R2=.044

The model predicted that the use of English with teachers was positively and significantly related to reading fluency. This is evidenced by the highest beta value (.18) and a corresponding statistically significant p-value (p=.000). The use of English by class 4 pupils only explained 4.4% of the variance in oral reading fluency. This may be an indication of the pupils' limited exposure to English language and possibly insufficient practice in using English as their expressive language.

ii. Second Supplementary Hypothesis

The second supplementary hypothesis stated that;

$H_{01.2}$: There is no significant relationship between English language use at home and reading fluency.

Multiple linear regression analysis was done using the enter method and ANOVA findings are presented in Table 4.11

Table 4.11

ANOVA for English Language Use at Home

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5078.9	5	1015.79	1.31	.258[b]
	Residual	295858.9	382	774.50		
	Total	300937.9	387			

a. Dependent Variable: Reading Fluency
b. Predictors: (Constant), older siblings, younger siblings, father, mother, friend

There was no statistically significant relationship between the use of English at home and reading fluency, F (5,382) = 1.31, p>.05. The null hypothesis that stated that there was no statistically significant relationship between the use of English at home and reading fluency in English was retained at alpha level .05. It was concluded that there is no relationship between the use of English at home and reading fluency in English. No further analysis to predict reading fluency scores were carried out.

b. Discussion of Findings

As earlier expressed by Mokua, (2014), there is a disparity between the desired language of learning and the language used by pupils. English was the least used language while Mother tongue and Kiswahili were most frequently used in the home and school context respectively. This finding that the use of English was limited to school was similar to Odima (2015) in Busia, Kenya.

Pupils in the study showed poor reading fluency in English. Most (47.7%) of the pupils read between 0-40 words correctly which is below the average 47 words

per minute. This is an issue of concern considering that class 4 pupils should be reading to learn. Pupils who struggle to read characteristically find difficulty in the identification of words. This is occasioned by the fact that they have not mastered letters, words, or even sounds. The fact that there were non-readers in class 4 as was evident in the modal score of zero (0) means that these pupils still need support to learn to read. This is very important because reading fluency is positively associated with reading comprehension (Piper, Schroeder & Trudell, 2016), and reading to understand is key for pupils' academic success

Although the study did not find a statistically significant relationship between the pupils' use of Kiswahili, English, and Mother tongue and reading fluency, the pupils who used mother tongue the most had the highest scores in reading fluency. This is similar to Agirdag and Vanlaar (2016) who reported a positive relationship between the use of the students' home language and their reading fluency. It has been theorized that attaining a sufficient level in the first language facilitates learning in subsequent languages (Kembo-Sure & Ogechi, 2016). This finding may be indicative of a successful language policy reinforced in the first three years of formal schooling, where pupils are taught in Mother tongue or language of catchment area before learning in English. Previous research encourages the use of Mother tongue, especially during foundational years. This allows for the transfer of learning in a new language in higher classes (Nabea, 2009).

The general poor scores by the pupils in reading fluency in English could also be explained by their use of mother tongue. A study on the influence of oral

proficiency in second language performance of class 4 pupils in 3 selected schools in Nairobi County Kenya by Dinga (2016) reported that pupils who used Mother tongue and Kiswahili in their social interactions performed poorly due to oral English language deficiency. Similarly, the poor reading fluency scores in this study may reflect limited exposure to English words among class 4 pupils. These pupils may have little chance to practice English outside the school context.

These findings are similar to Berthet (2020) who also found that pupils who did not use English but Kiswahili or Mother tongue at home performed comparatively better in oral reading skills than those who did not. The study further suggested that 'having a home language that is not Kiswahili is not detrimental to language transfer once a certain proficiency is reached in English and Kiswahili'. The pupils' use of Mother tongue at home and possible proficiency in the same may have provided the necessary language skills that assist in reading fluency in the English language. The implementation of the policy that pupils be taught in mother tongue or language in the catchment area in their first three years of school appears to support pupils reading fluency in English. This study did not however assess reading in Mother tongue since its use in school in not reinforced especially after three years of school when pupils are expected to be able to read to learn.

The supplementary hypothesis result of multiple regression analysis showed that pupils' use of English at school with their teachers significantly predicted reading fluency scores. The contribution of teachers in pupils' reading fluency is evident

in research and theory where the teacher acts as a model language user who uses language properly, correctly pronounces words, and uses correct expressions when reading passages aloud. Chorus reading and teacher guidance through repeated readings influence pupils' reading fluency by giving them a fluent model reader to hear, see and imitate and gives room for practice for a new language.

Many pupils lack the scaffolding necessary for using the English language. The findings of this research may largely reflect the fact that the use of the English language among pupils transiting to a class where they are required to read in English has remained unaddressed. The school environment may be the only place where the English language was expected to be used and where it was reinforced. For the pupils, there was probably no use of English outside the school.

Since the pupils read in a second or third language for which they have little to no reinforcement at home, model use of the English language is important for their oral reading fluency. Modeling for reading fluency and text comprehension supports the theory posed in the study where social interaction with more knowledgeable others facilitates learning (Vygotsky, 1978).

The findings were similar to Fritz's (2011) study among 7-11 years old Spanish-English-speakers from a public school in Georgia, USA. The study on the use of Spanish and English in relation to reading ability found a positive association between the use of the English language and reading. The more pupils used English with people outside the home, the higher their reading scores.

4.5 Relationship between Language Use and Text Comprehension

This subsection presents the results of the second objective of the study. It begins with a descriptive analysis of text comprehension. The analysis for the language use variable was done in the previous section.

a. Descriptive Analysis of Pupils' Text Comprehension

The study sought to determine the relationship between pupils' language use and text comprehension. The results of language use have been described in 4.3.1 therefore the descriptive analysis in this section is only done for text comprehension. Participants also took an English comprehension test whose scores are summarized in Table 4.12.

Table 4.12

Summary of Participants Text Comprehension Scores

Mean	Mode	Std. Deviation	Variance	Skewness	Kurtosis	Min	Max
1.18	0	1.327	1.761	.926	-.183	0	5

Key: Min = Minimum, Max=Maximum, Std. Deviation = Standard Deviation,
Note. N=388

The mean score in text comprehension was 1.18 (SD=1.327), the range between the minimum and maximum score was 5 while the most frequent score as indicated by the mode value was 0. This means that most of the pupils obtained low scores in text comprehension. The distribution of the scores of text comprehension was positively skewed. The coefficient of skewness was .92 which indicates that many participants obtained text comprehension scores on the lower levels.

Table 4.13

Levels of Text Comprehension Scores

Text Comprehension	Frequency	Percentage
0-2	310	79.8
3-5	78	20.1

The results show that most (79.8%) of the pupils performed poorly in text comprehension while less than 25% obtained more than 50% of the total score in the English comprehension test.

b. Hypothesis Testing

In line with the second objective of the study that sought to determine the relationship between language use and text comprehension this second null hypothesis was formulated;

H_{02}: Language use does not significantly predict text comprehension.

The variable of interest was text comprehension, a variable that measured pupils' understanding of a short passage written in English and which was a continuous variable. Language Use is a categorical variable with three possible values labeled as English, Kiswahili, and Mother tongue. Each of these values or categories was given a number that initially could not be used in linear regression since it had no numerical value. The coded values were changed by creating dummy variables to the categorical variables to assign numerical variables. Each was coded 1 or 0 where 1 fall in the category and 0 for that which did not. After

testing for assumptions, Multiple Linear Regression was carried out with language use as the categorical variable.

The regression model showed that language use did not significantly predict text comprehension F (3,387) =.846, p>.05.

The coefficients of the linear regression are presented in Table 4.14.

Table 4.14

Linear Regression Coefficients for Language Use and Text Comprehension

Model		**Un-Standardised Coefficients**		**Standardised Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.000	1.329		1.505	.133
	English	-1.172	1.352	-.232	-.867	.386
	Mother-tongue	-.802	1.335	-.277	-.601	.548
	Kiswahili	-.793	1.332	-.290	-.596	.552

a. Dependent Variable: Text Comprehension

Fitted regression equations for the model were provided to predict the values of text comprehension scores for the given values of language used using 2.000 as the constant coefficient. Using linear regression equation Y=a + bx to predict text comprehension scores where Y=dependent variable;

a= constant or baseline coefficient;

b = coefficient associated with each dummy variable;

x= value given to the independent variable.

The linear regression equation for this model is

Text comprehension = 2.000+ (b x language use).

Predictive text comprehension scores for pupils who indicated most use of English, Mother-tongue and Kiswahili respectively are indicated below:

Text Comprehension=2.000+ (-1.172 x1) =0.828 (English)

Text comprehension= 2.000 + (-0.802 x 1) = 1.198(Mother-tongue)

Text comprehension = 2.000 + (-0.793 x 1) = 1.207 (Kiswahili)

Text comprehension scores in English were highest (1.207) among pupils who said they used Kiswahili the most, closely followed by those who used Mother tongue the most (1.198) and lowest among those that indicated that they used English most frequently. Kiswahili is the language commonly used in a context such as Busia where there is no common language or direct among the communities represented in the population. It is the language of the catchment area and is also used for instruction in school.

English language use was singled out for further analysis to determine with whom pupils used English and if that influenced their text comprehension. This

was done on the premise that English is a language of learning in school. The supplementary hypotheses advanced for the analysis were;

$H_{02.1}$: There is no significant relationship between English language use at school and text comprehension.

$H_{02.2}$: There is no significant relationship between English language use at home and text comprehension.

i. First Supplementary Hypothesis

$H_{02.1}$: There is no significant relationship between English language use at school and text comprehension. Results of the analysis are presented in Table 4.15

Table 4.15

ANOVA of Text Comprehension

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.418	4	9.105	5.407	.000[b]
	Residual	644.953	383	1.684		
	Total	681.371	387			

a. Dependent Variable: Text Comprehension
b. Predictors: (Constant), English used in the playfield, with the teacher, with workers, English users with classmates

The analysis yielded results that indicated that there was a statistically significant relationship between the use of the English language at school and text comprehension, F (4,383) = 5.40, p=.000. The null hypothesis of no statistically significant relationship between English language use at school and text comprehension was rejected and the alternative that states that there is a

statistically significant relationship between English language use at school and text comprehension was retained at p<.05. It was concluded that there is a significant relationship between the use of English at school and text comprehension. Categories of persons with whom pupils spoke English the most were identified for analysis and results are summarized in Table 4.16.

Table 4.16

Coefficients of Regression for Language Use on Text Comprehension

Model		**Un-standardised Coefficients**		**Standardised Coefficients**	
		B	**Std. Error**	**Beta**	**Sig.**
1	(Constant)	1.056	.082		.000
	Use English with teacher	.663	.150	.231	.000
	Use English with classmates	-.007	.231	-.002	.977
	Use English with workers	-.288	.202	-.077	.155
	Use English in playfield	-.282	.212	-.073	.184

a. Dependent Variable: Text Comprehension

An examination of the regression coefficients revealed that only pupils' use of the English language with their teachers was significantly related to text comprehension at p<.05.

ii. Second Supplementary Hypothesis

$H_{02.2}$: There is no significant relationship between English language use at home and text comprehension.

The results of the multiple linear regression are presented in Table 4.17.

Table 4.17

ANOVA for English Language at home and Text Comprehension

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.047	5	1.009	.569	.724[b]
	Residual	677.683	382	1.774		
	Total	682.729	387			

a. Dependent Variable: Text Comprehension
b. Predictors: (Constant), Use English with an older sibling, Use English with younger siblings, Use English with Father, Use English with Mother.

The analysis yielded no statistical significance in the relationship between the use of English at home and text comprehension, F (5,382) =.569, p>.05. The null hypothesis that states that there is no statistically significant relationship between the use of English at home and text comprehension in English was retained at p>.05 and the conclusion was that there is no statistically significant relationship between English language use at home and text comprehension. No further analysis was conducted.

c. Discussion of Findings

Results of multiple regression analysis on the second hypothesis of this study showed that language use did not significantly predict text comprehension. This means that the pupils' use of English, Kiswahili, and mother tongue did not predict English text comprehension. However, fitted regression equations for the model predicted that pupils who used Kiswahili the most had better scores in text comprehension than those who indicated otherwise.

In this study, Kiswahili was mostly used in the school context. Busia County has diverse languages from Bantu and Nilotic communities meaning that Kiswahili is the language commonly used as the language in the catchment area in primary schools. The teachers may not speak the same language as the pupils and pupils may not use the same dialect among themselves. Those that indicated that they used the English language the most obtained the lowest scores in text comprehension. The language used is an indicator of existing knowledge of vocabulary and the scores of pupils using English could be explained by their deficiency in English vocabulary.

In their study on the relationship between second language oral proficiency and reading comprehension among five 6th grade Spanish and English bilingual pupils, Peregoy (2013) found that limited English language proficiency was associated with low reading comprehension in English. Pupils with limited exposure and use of the English language had low comprehension of English text and these results are the same as the current study when English is mostly used in school context only.

A supplementary hypothesis on the use of English both at school and home context was developed and tested. The English language was isolated for further analysis because it is the language of instruction and most pupils are encouraged to use English and may be punished when they use other languages in school, especially from class 4. Findings of the supplementary hypothesis indicated that the use of English language use in school and not at home was a significant predictor of text comprehension. The findings are similar to Zheng and Peng

(2018) who found a positive association between the use of the English language, English vocabulary, and reading comprehension and concluded that the exposure to English supported reading comprehension in the same language. Although their study was conducted among a bilingual population, the results are similar in Kenya where pupils may use more than two languages.

Unlike Ribot, Hoff, and Burridge (2018), the study did not investigate the use of all languages pupils use inside and outside the school context. That would have shown whether there was a relationship between the language used at home and comprehension of the same language. Mother tongue instruction does not continue beyond class 3 nor is it examined or accorded much value in school. The influence of the school in the language used increases as the pupils attend higher classes.

The results of this study are similar to other studies done in different locations and contexts. In a controlled study among mono and bilinguals consisting of Welsh only, Welsh-English and English only speaking elementary school children, Gathercole (2013) found children who were exposed to the English language developed English vocabulary early. In their study, early exposure to English did not determine comprehension. Using a different approach and in a different context, the present study also found no relationship between language use and text comprehension. However, when language use was done in context then the use of English in school was statistically related to text comprehension.

Piper, Schroeder, and Trudell (2016) found that the relationship between reading fluency and text comprehension was dependent on whether the text read was in Mother tongue or not. Text comprehension scores were highest when text read was in Mother tongue for both Kikuyu and Dholuo subjects. Pupils in their study understood Mother tongue better than their language of instruction. This may be a reason for repeated failure in reading since from class 4 learning is measured in English and to a lesser extent Kiswahili.

According to Vygotsky (1978), social interaction with knowledgeable others is important for cognitive development. In this study, pupils' use of English in school and particularly with teachers was a significant predictor of text comprehension. The classroom social context provided the classroom environment where significant others specifically the teacher helps readers negotiate meaning in a text. The teacher ideally draws examples from the environment and provides time for reading activities and allows readers to interact with the text to develop ideas about it. The findings are in tandem with the explanation Vygotsky's social interaction theory gives explaining language as having an interactive role and a social purpose in learning.

The school environment favours the use of English, and a pupil who communicates with their teacher in English for example has the opportunity to use and learn new vocabulary and have their language corrected. With the help of the more knowledgeable other, pupils can then improve their English. The teacher helps scaffold the words used by the pupil and this learning experience may not be available at home. This theory explains the significant relationship

between English language use at school and text comprehension since in this study it is within the school context that English appeared to be used the most.

The use of English with the teacher significantly predicted text comprehension. The social interaction and exposure to English in the school environment is an opportunity to learn and use new vocabulary. Classroom experiences where teachers make inferences based on what pupils already know and the use of question and answer to assess the learners' level information helps to ensure that reading is conducted with the ultimate goal of understanding written text.

The pupils in this study were observed to have poor reading comprehension in English with only 20.1% of the pupils obtaining higher-level text comprehension scores. This means that most of the pupils do not understand what they read in English. This finding could be a result of poor reading fluency because it has been reported that 90% of deficiency in comprehension is as a result of oral reading fluency (DiSalle & Rasinski, 2017; Piper, Schroeder & Trudell, 2016; Zimmerman, 2014). While fluent readers spend their cognitive effort and attention on the meaning of a text, non-fluent readers concentrate on decoding words that they may not recognise. Lack of background knowledge and English vocabulary impedes comprehension. Teachers must ensure that pupils can appreciate letters and recognise words early in their school life.

4.5 Relationship between Literacy Environment and Reading Fluency

This subsection presents the results of the third objective of the study. Descriptive analysis is presented followed by results on the relationship between literacy environment and reading fluency.

a. Description of Literacy Environment

Observations were carried out on the availability of literacy materials namely books, timetable, textbooks, story books, newspapers, charts, word games, and facilities like a library in the school. The physical environment of the classroom was also observed. Results on the school literacy environment are presented in Table 4.18

Table 4.18

Summary Description of School Literacy Environment

Reading Resources	Frequency	Percentage
Display of Books	1	14.2
Study Desk	7	100
Reading Timetable	1	14.2
Text Books	7	7
Story Books	-	-
Book Store	1	14.2
Newspaper	2	28.5
Word Games	2	28.5
Wall Charts	5	71.4
Radio	3	42.8
TV	1	14.2

Out of the 7 schools, only 1 had a collection of books in a store. Most of the other schools had books for pupil distribution stored in the deputy or head teacher's office. Radios were seen in 3 of 7 schools and these were located in the administrator's office. Although we observed word games these were also in the administrator's office. Only 1 of the 7 schools had a TV which was old and non-functional. Only 2 schools had newspapers and these too were in the administrator's office. In classrooms, we observed wall charts in 5 of 7 schools.

Physical classroom environment observations revealed printed reading materials were present in all schools and the most common type was wall charts implying that teachers were making use of visual teaching aids. All schools had comfortable sitting spaces for all pupils and such physical environments facilitate learning. It was observed that none of the learners lacked a place to sit even in poorly resourced schools. None of the schools had a visible library where pupils could read and borrow books and none had visible story books in class. Interviews with teachers later revealed that most of the reading resources in the schools were not placed in the classroom but were kept in the school administrator's office or store. The classrooms had no lockable desks and no secure place for books and reading materials and this could explain why there were more reading materials in the school office and staff room than in the classrooms.

Based on the availability of reading resources, the literacy environment was further categorized into rich and poorly resourced school literacy environments. The researcher determined the levels of school literacy environment as follows;

those schools which had more than 50% of reading resources listed were classified as rich. Those schools that had below 50% were classified as poor.

The results are presented in Table 4.19.

Table 4.19

Classification of School by Reading Resources

School Resources	Frequency (Percentage)
Rich	3 (42.8%)
Poor	4 (57.2%)

Table 4.19 indicates that 42.8 % of the participants were from schools with rich resources and 57.2 % were from schools defined as poorly resourced.

Pupils' classroom experience indicated literacy-related activities as assessed by English language class teachers. This is because teachers manage the learning environment in the classroom and can provide information on the pupils' classroom behaviour during the lesson and this is also the practice in similar studies (Sifuna, 2013).

Table 4.20 presents teachers' responses to 11 statements on pupils' literacy experiences.

Table 4.20

Pupils' Classroom Literacy Experience

Statement	**Frequency**				
	5	4	3	2	1
1. Pupils listen to passages read aloud from books.	0	5	0	4	0
2. Pupils read independently daily.	0	4	3	2	0
3. Pupils discuss passages read with their teachers.	3	1	3	0	0
4. Pupils receive feedback on reading.	0	4	0	3	3
5. Pupils do not have many reading opportunities.	0	1	1	7	0
6. Challenged readers are organized into small groups to ease learning.	0	5	1	3	0
7. Challenged readers are given books for younger children to read.	4	0	1	0	4
8. Challenged readers have one-to-one sessions with the teacher.	3	5	0	1	0
9. Pupils are occasionally allowed to use Mother tongue or Kiswahili in class.	4	2	1	0	0
10. Pupils are punished when they use Kiswahili or Mother Tongue	0	0	4	0	5

Note: N = 9

The responses were coded 5-Never 4-Rarely 3-Unsure 2-Often 1-Always.

Items 1-5 examined the behavior of pupils and teachers during reading activities. The highest agreement in responses was in item 5, where 7 out of 9 teachers responded that pupils often 'do not have many reading opportunities.' This may probably be an indication that the school activities or class timetable do not often allow for reading time.

Items 6-8 examined the nature of reading support accorded to pupils in school. Here, 5 of the 9 teachers reported that 'challenged readers are rarely organized into small groups to ease learning'. This response agrees with teachers' responses during the interviews where some teachers said they were unable to provide focused attention to readers because of the large number of pupils and limited literacy resources.

Items 9-11 examined language use in school and a total of 6 out of 9 teachers responded either 'never' or 'rarely' to the statement, 'pupils are occasionally allowed to use Mother tongue or Kiswahili.' This is an indication of the restricted use of these two languages in school. In fact, in response to the statement that 'pupils are punished when they use Kiswahili or Mother tongue' 5 out of 9 responded with 'always'. This would imply that English is the preferred language in school.

To have richer information on the environment in which reading took place, an unstructured interview was conducted with English teachers by using open-ended questions as a guide. The interview enriched information on classroom literacy practice and school literacy environment obtained from responses to the Likert-type questionnaire the teachers of English had completed.

Qualitative Analysis

Results of the teacher interview are presented in a narrative format. To ease their identification, school teachers are known by alphabet for example Teacher H or

Teacher A. Main factors were identified for further discussion and are presented in this section.

Asked about language use in the school, Teacher B said that their school had a 'language policy' in place and described its practice and function.

> To deter the use of Mother tongue and Kiswahili in my school from Monday to Thursday, a shaming system is employed where a disc is worn to shame pupils between classes 4 to 8 who did not use English in school on the agreeable days.

This was common practice across the schools. Their language regulation was meant to encourage the use of English in school. In 4 out of 5 days of schooling, English is the agreeable language used in school while Kiswahili is spoken on Fridays. This practice is enforced particularly for upper primary pupils who are not permitted to use Mother tongue in school. However, Teacher E whose school also regulates language use from class 4 said that the system of control for language use in school, "was not effective'. He explained that many pupils successfully avoided the disc by 'keeping quiet'. On pupils' use of English language, the teacher said that their pupils speak English though it is "broken English".

When asked about language used by teachers for pupils' instruction, teachers uniformly said they taught in English as per the regulations from class 4 however Kiswahili language is used as a second language of instruction during Kiswahili lessons. Teacher B admitted to switching from English to Kiswahili because most pupils understood it. This sentiment was similar across the teachers.

Teacher E mentioned that Mother tongue is also used in class on ‘special instances. He explained by saying

> ...I will sometimes ask pupils who have understood a new word in English to say the same in Iteso for the one who has not understood it.

Concerning how the schools support reading among pupils, teachers C and E noted they were trained to teach Kiswahili and English languages and reading specifically through the Tusome reading initiative in the county schools. Every school teacher appeared to appreciate the role of Tusome a reading initiative in county schools that involves teaching pre-literacy skills to school children in classes 1-3. Teachers B, H, and E all felt that access to books solves reading resource challenges, especially for pupils from a ‘disadvantaged background’. Tusome program gave books to the schools for use in class 1-3 and class 4 pupils still use their books to practice the language on their own. Another form of reading resource support was highlighted by Teacher G who noted the role of the government in the provision of reading resources to schools. She specified that pupils have access to digital laptops with e-books that contain story books with pictures for illustration. Concerning time for reading, the teacher said pupils read these books in school after games.

Pupils’ access to extra reading resources is voluntary where books are lent to willing readers who wished to borrow books from their teacher. However, sometimes the books are not sufficient. In her school teacher G noted that she encouraged book sharing.

> No books were supplied by the government through Free Primary Education to our school this year so we rely on what we have stored. Books are few and the ratio is 1 English textbook to 4 pupils.

The story is similar in Teacher E's school where the teacher had 12 textbooks for English and changed sitting arrangement from common rows into pupils seated facing each other so that they can share English textbooks. There was a heavy reliance on reading story books from the Tusome initiative. According to Teacher E, their school had a reading library which consists of old newspapers and a few story books stored in a cabinet and manned by the language teacher. Pupils in class 4 had access to these reading resources for 35 minutes in a week when the English lesson was now called a "library lesson."

When questioned on how the teachers themselves support pupils to read, teacher H said that because of numbers they obviously could not focus on individual children so they would normally read aloud together.

> I read and they (pupils) repeat and I ask questions to find out if they follow it.

Asked why she used this teaching strategy, Teacher B also noted that reading aloud allowed her to give quick feedback on pupils' pronunciation and it was also "good for others" to listen to and learn from the reading of their classmate and teacher. Oral questions are then asked to assess pupils' text comprehension.

Teacher D felt that about 60% of her class 4 parents offered reading support to their children. Some examples she gave to show that parents of class 4 pupils supported their children's reading was their "sending their children to school",

and “providing reading materials for them." She also noted that more mothers showed support for school-related concerns since they attended school concerns more frequently than the fathers. Teacher B noted a challenge with many parents’ support for their children’s reading noting that the school only provides course books but story books are the parent’s responsibility. Provision of story books did not seem to happen at home. In the opinion of Teacher G, parents understand Free Primary Education means all reading support including resources is the schools’ responsibility. Teacher B said the school also offers reading support when teachers allow willing pupils to borrow books from school to read at home.

Teacher C mentioned that struggling readers were supported through remedial lessons conducted between 7-8 am before school hours begin. She mainly teaches the children how to read emphasizing how to read and what they have not mastered in reading and her view ‘comprehension comes later’. They read first then they understand what they read. Teacher E also held remedial lessons after lunch where he said he revisits components of reading including sounds for struggling readers.

Concerning support for reading activities in school, Teacher G said that the school has a reading initiative for class 4-8 pupils called a ‘library day’ which is a given day during the week where pupils are engaged in individual reading. The school provides pupils with books usually these are books obtained in a previous reading program. They read uninterrupted on their own and after the reading

exercise pupils are required to rewrite a story they read. She said she had observed improved writing in English which she linked to this practice.

Teachers of English shared the same experience with difficulty among most pupils in answering comprehension questions. Teacher B said,

> In my class, pupils can read but about 60% understand what they read… and even in class 8 students know how to read but comprehension is a problem!

Similar sentiments were expressed by Teacher E who said that pupils "move with reading difficulties" from lower classes. Among his class 4 pupils, 3 out of every 10 cannot understand what they read. He observed that he had 5 non-readers who could not even read one word after three years in school. He also noted a disparity where pupils who can read and understand the English language have an 'obvious advantage' over those who cannot.

Teacher B felt that the reason behind poor text comprehension was because of 'no language practice' and in her words,

> English ends in class and they have no practice of sentence construction. They will not talk and choose to be quiet though they can speak broken English and parents also do not get them story books. In a class, only two children had new storybooks.

Discussion of Findings

The schools uniformly have measures to regulate language use in their schools where English language among pupils is encouraged while the use of Mother

tongue is discouraged from class 4 and even punished (Kembo-Sure & Ongechi, 2016). Teachers also noted that they have pupils respond in silence to their use of English which is similar to the findings in Lisanza (2011) who found some pupils chose to be quiet in the classroom while the teacher dominated the conversation in English.

The qualitative findings also support the assertion that it is in class 4 that differences in readers' abilities become clearer. Teachers noted that class 4 pupils could read in English but some did not understand what they read. Similarly, Zimmerman (2014) found that fluent readers in English did not understand what they were reading. Although reading aloud has been linked to reading fluency, a review of data on South Africa's grade 4 pupils reading by the researcher showed that teachers' emphasis on pupils reading aloud and correctly is often at the expense of pupils interrogating reading text. The finding concerning poor text comprehension among class 4 pupils is partially explained by UWEZO (2012) where a large number of class 3 pupils with poor reading skills graduate to class 4 without having mastered reading. These sentiments were shared by at least one of the teachers interviewed. Reading resources lacking at home are supplemented by books from the school thus availing books for needy pupils.

The children's home literacy environment was also examined. The home literacy environment looked at the presence of a variety of reading resources in the home. The results are summarised in Table 4.21

Table 4.21

Participants' Home Literacy Environment

Literacy Resource	Frequency	Percent
Rich resources	84	21.6
Poorly resourced	304	78.4

Most (78.4%) of the participants reported having poor reading resources while 21.6% came from homes that were rich in reading resources. Further analysis was done on the reading support pupils received at home. The findings are summarized in Table 4.22.

Table 4.22

Home Reading Support

Reading Aid		Frequency	Percentage
Aided pupils		215	55.4
Not aided		173	44.6
Reading support from			
Parent		52	(29.3%)
	Father	18	(34.7%)
	Mother	34	(65.3%)
Sibling		122	(68.9%)
Other		3	(1.6%)

Most (55.4%) of the respondents were aided to read at home while the rest indicated that they did not have home reading support. Among those that had home reading support, 29.3% indicated were supported to read by a parent. Among those helped to read by a parent, 65.3% mentioned that their mother

helped them in reading-related activities. The greater part of a support for reading was provided by a sibling 68.9%. Only 1.6% mentioned reading support came from outside the family.

Examination of the nature of reading support showed that mothers' support for readers included ‘listening to me read’ and ‘showing me how to read and spell words’. Fathers' support included ‘buying books’, ‘reading story books’ and ‘looking at my written work’. The nature of reading support offered by siblings appeared much more varied and included ‘giving me story books to read’, ‘saying read like this’ and ‘repeat this word’ and ‘listen to me read’, and ‘follow when I read’. This shows that reading practice at home involved social interactions with family members and is varied in nature.

A summary of the relationship between literacy environment and reading fluency is presented in Table 4.23.

Table 4.23

Descriptive Analysis of Relationship between Literacy Environment and Reading Fluency

Literacy Environment		Reading Fluency Mean	Standard Deviation
School reading resources	Rich	53.15	29.9
	Poor	32.89	20.3
Home reading resources	Rich	53.74	27.49
	Poor	45.84	27.79

Note: N = 388

The data shows that respondents who scored lower reading fluency mean 32.8 (SD=20.3) were from schools with poor resources for reading while a higher

mean of 53.15 (*SD*=29.9) was found in richly resourced schools. To test for significance in the relationship between school literacy environment and reading fluency, the following hypothesis was developed and tested.

b. Hypothesis Testing

The following null hypothesis was formulated;

H_{02}: Literacy Environment does not significantly predict reading fluency.

Multiple linear regression was conducted on home and school environments and the results are summarised in Table 4.24.

Table 4.24

ANOVA for Literacy Environment and Reading Fluency

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21709.242	2	10854.621	14.966	.000[b]
	Residual	279228.727	385	725.269		
	Total	300937.969	387			

Note. N=388. R=.269; R2=0.072

Results showed that the literacy environment significantly predicted reading fluency F (2,387) =14.96, p<.05. From the findings, 7.2% of reading fluency could be explained by the literacy environment. Analysed singly, 6.2% variance in reading fluency could be explained by school literacy environment while 1.4% variance in reading fluency would be explained by home literacy environment.

To determine the contribution of aided reading on reading fluency, a block of confounds was first entered into a regression equation followed by a second block of predictor variables. To control for the possible effect of the confounding variables specifically gender and age of participants, a hierarchical linear regression model with a sequential entry of variables into the regression equation was done based on variables the researcher assessed as being contributors to the dependent variable. The contribution of the predictors on the variance in the outcome variable is summarized in Table 4.25 below.

Table 4.25

Summary of Hierarchical Regression Analysis Literacy Environment and Reading Fluency

Model					**Sig.**
		B	**Std. Error**	**Beta**	
1	Male or Female	-6.098	2.797	-.109	.030
	Chronological Age	-5.053	1.002	-.253	.000
2	Male or Female	-5.246	2.642	-.094	.048
	Chronological Age	-4.546	.942	-.228	.000
	Aided Reading	11.406	2.641	.204	.000
	Home Resource	9.820	3.211	.145	.002
	School Resource	7.493	2.617	.134	.004

Note. R^2 =.090 for Model 1(p=.000) Model 2: R^2=.189 (p=.000)

Gender and age had a negative but significant relationship with reading fluency meaning that the younger the pupil, the higher their reading fluency score. Gender was coded 1 for boys and 0 for girls and the findings were indicative of boys scoring lower in reading fluency than girls. Beta values (standardised regression coefficients) were also examined to see how strongly each predictor

influenced reading fluency and the highest unique contributor to reading fluency was aided reading with a beta value of .204. This indicates that a change of 1 standard deviation in aided reading results in a .204 change in reading fluency.

The inclusion of confounds increased the model's ability to explain the relationship between literacy environment and reading fluency. In the first model; age and gender accounted for 9 % of the variation in reading fluency and the model was statistically significant. The second model was also statistically significant and had an R-squared value of .189. The second model inclusive of gender, age, aided reading, and reading resources at home and school accounted for an 18.9% variance in the outcome variable. This means that 81.1% variance in reading fluency is accounted for by other variables.

c. Discussion of Findings

In this study literacy environment significantly predicted reading fluency in English. Reading resources at home and school positively contributed to participants reading fluency and aided reading was the highest contributor to their fluency. It would appear that provision of reading materials alone is insufficient for reading fluency. The current study found that reading resources and aided reading were significant contributors to reading fluency. Like the findings by Mwoma (2017), reading resources at home and school as well as support from parents and teachers are very important for reading. The findings were similar to Opiyo (2017) who concluded that home literacy practice including social support by caregivers and availability of home literacy resources

promoted early reading. The results were similar to Piper, Zuilkowski, and Mugenda (2014) who observed significant improvements in oral reading fluency in English and Kiswahili when pupils were provided with reading materials. Provision of instructional materials and books in Kiswahili and English school reading resources, significantly predicted pupils reading fluency.

The current findings differed from Blimpo and Evans (2011) who did not record significant gains in reading among their study subjects following the provision of reading resources to schools. The findings would have been an indication that the provision of reading resources though important is not sufficient for reading achievement. The challenge with inadequate textbooks for pupils' reference during language lessons means that pupils turn to share books or rely on teachers writing on the chalkboard for them to read. In one school the teacher mentioned having an English textbook shared among 4 pupils. Reading charts and calendars on the walls in schools were not a common sight in certain class 4 classrooms and when these charts were in place, they were in some schools old and non-functional leaving most walls bare of words to read.

The role of model readers in the immediate environment support reading fluency and social interaction with knowledgeable others facilitating learning through scaffolding, guidance, and encouragement (Vygotsky, 1978). Aided reading in this study referred to pupils' engagement with others in reading-related activities at home. The nature of aided reading was varied and participants mentioned reading resource provision specifically 'books purchased' usually by a parent, 'books were given usually by a sibling. The nature of support also included

teaching strategies for example some participants said they were helped to read when asked by the person aiding them to repeat a word and instructed to ‘read like this’. Some respondents said they were supported when they could read to an audience. The persons who gave reading support were parents, siblings, or neighbours of the participants. These served as a community of teachers supporting reading.

An interesting finding in this study is the difference in reading support that families offer young readers. The reading support children received at home included passive support such as the provision of reading materials as was evidenced by pupils who indicated their fathers mostly ‘purchased textbooks and storybooks’. More respondents said mothers often listened to them read. In this study access to books and shared reading, practices are linked to reading fluency. These findings are similar to Bergen, Zuijen, Bishop, and de Jong (2017) and Kimathi (2014). The latter used a theory of parental involvement in children’s reading at home which included modeling (a cognitive dimension) where parents’ read to a child or listened to them read. Another dimension is behavioural where parents remind a child to read or do homework. The nature of reading support from siblings was varied from shared reading, listening to the young reader, and giving books to read.

After studying 989 Chilean, low-income pre-schoolers, Mendive, Lissi, Bakeman, and Reyes (2017) also reported that mothers’ reading to their children positively and significantly predicted children’s vocabulary, letters, and words

identification, and ability to write letters. Shared book reading correlated to young children's decoding and comprehension skills

Piper, Schrieder, and Trudell (2016) indicated that print awareness and book exposure determine oral reading fluency. In this study, according to Table 4.5, most of the pupils read in English (50.3%) and in class 4, probably, pupils are already exposed to books in English. The explanation for comparatively reading fewer words in English by those who said they used English most might be that they have a poor understanding of the words they read in English.

4.6 Relationship between Literacy Environment and Text Comprehension

a. Description of Literacy Environment and Text Comprehension

The summary on the relationship between literacy environment and text comprehension for literacy environment is presented in Table 4.26.

Table 4.26

Descriptive Analysis of the Relationship between Literacy Environment and Text Comprehension

Category	Text comprehension Mean	Standard Deviation
School Literacy		
Rich	1.59	1.66
Poor	.91	.67
Home Literacy		
Rich	1.51	1.42
Poor	1.09	1.28

Table 4.26 shows that the higher mean score of 1.59(SD=1.66) in text comprehension was attained by participants from richly resourced schools.

Participants from homes with poor literacy environments obtained lower mean scores in text comprehension of 1.09(SD=1.28) compared to the mean of participants from homes with rich resources 1.51 (SD=1.42).

The fourth objective of the study was to establish the relationship between literacy environment and text comprehension.

H_{03}: Literacy environment does not significantly predict text comprehension

Multiple linear regression was conducted and the results are presented in Table 4.27.

Table 4.27

ANOVA for Literacy Environment and Text Comprehension

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85.573	2	42.787	27.586	.000[b]
	Residual	597.156	385	1.551		
	Total	682.729	387			

Note. N=388 R=.324 R^2=.125

Table 4.27 indicates literacy environment significantly predicted text comprehension F (2,387) =27.587, p<.05 The null hypothesis was rejected. It was concluded that the literacy environment significantly predicts text comprehension. The literacy environment explained a 12.5% variance in text comprehension. When analysed singly, home and school reading resources explained 1.7% and 14.2% of text comprehension respectively.

To determine the best predictor of text comprehension multiple regression was conducted to include aided reading while controlling for confounds of age and gender. A block of confounding variables was first entered into a regression equation followed by a block of predictor variables.

Beta values (standardized regression coefficients) were also examined to see how strongly each predictor influenced text comprehension. The highest unique contributor to text comprehension was school resources indicated by a beta value of 0.29. A change of 1 standard deviation in school resources resulted in a 0.29 change in text comprehension. A summary of the hierarchical regression analysis is presented in Table 4.28.

Table 4.28

Summary of Hierarchical Regression Analysis of Literacy Environment and Text Comprehension

Model					**Sig.**
		B	**Std. Error**	**Beta**	
1	(Constant)	2.38	.54		.00
	Gender	-.03	.13	-.01	.841
	Chronological Age	-.11	.05	-.11	.031
2	(Constant)	1.79	.58		.00
	Gender	-.01	.13	-.01	.92
	Chronological Age	-.08	.04	-.08	.08
	Aided Reading	.32	.13	.12	.01
	Home Resources	.45	.15	.14	.00
	School Resources	.76	.13	.29	.00

Note. R^2 =.013 for Model 1(p=.073) Model 2: R^2=.155 (p=.045)

The best significant predictor of text comprehension is school resources (Beta=.29, p=.000). Unlike the other variables in the equation, gender and age had a negative relationship with text comprehension. This means that more mature pupils scored poorly in text comprehension compared to younger class 4 participants in the study. Boys also scored lower in text comprehension compared to girls. Age and gender accounted for 1.3% of the variation in text comprehension in the first model and did not significantly predict text comprehension, F (2,387) =2.63, p>.05. The second model which included age, gender, aided reading, home and school resources as predictors accounted for 15.5% of the variation in text comprehension and the model was statistically significant, F (4,387) =2.46, p<.05. The regression models are summarized in Table 4.29.

Table 4.29

Model Summary for Literacy Environment and Text Comprehension

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	9.207	2	4.60	2.63	.073
	Residual	673.523	385	1.74		
	Total	682.729	387			
2	Regression	17.113	4	4.27	2.46	.045
	Residual	665.616	383	1.73		
	Total	682.729	387			

Note. R^2 =.013 for Model 1(*p*=.073) Model 2: R^2=.155 (*p*=.045)

b. Discussion of Findings

In this study literacy environment significantly predicted text comprehension. The participants in this study were school-going children and school resources contributed the highest contribution to text comprehension when compared to home resources and aided reading. Regression analysis by Mwoma (2017) showed a significant positive relationship between the presence of English textbooks and reading in English. School is an important environment for English text comprehension because reading resources are available, particularly for children who may not have many books or reading support at home. School also gives the children access to trained teachers and peers who enhance their literacy experience (Wang'eri & Mugambi, 2014). The learning activities in schools serve to support text comprehension. The teacher's role in facilitating English reading comprehension includes planning pupils reading activities and drawing examples from their environment to help learners understand the text. When helped with the interpretation of what they read, pupils can understand written text (Zimmerman, 2014).

According to Zimmermann (2014) teachers tend to read to pupils more often in print-filled classrooms because the presence of print encourages increased engagement between the teachers, pupils, and the print. In such environment's teachers emphasise pupils reading aloud and correct pronunciations thus giving feedback to help young readers.

These findings are similar to Boerma, Mol, and Jolles (2017) who showed that the home literacy environment continues to contribute to the reading comprehension of children in higher grades of primary education. The researchers found a direct relationship between children's home literacy environment and their reading comprehension. Like the current study, the availability of reading materials at home was one of the indicators of home literacy environment. Children from rich literacy environment were familiar with recognition of more books than those from poorer literacy environment. Unlike their study that relied on print exposure through pupils' recognition of book titles, the current study's focus was on the presence of varied types of reading resources at home. Unlike the current study that only focused on class 4 pupils, their results did not differentiate Grade 3 from 4 reading comprehension.

In this study, aided reading by parents and siblings also showed a higher contribution to text comprehension than the availability of reading resources at home. Earlier research shows direct interaction with more knowledgeable others assists in the understanding of the written text and is a significant predictor of text comprehension (Martini & Sénéchal, 2012). Baltar and da Mota (2016) and Yeung and King (2015) had similar findings where shared reading and print exposure showed higher reading comprehension among 233 children from low-income families. The findings are also similar to Bracken and Fischel (2008) whose results indicated that parent-child interactions were a better predictor of reading comprehension than exposure to storybooks and other demographic data on family and reading behaviour.

4.7 Interaction effect between Language Use, Literacy Environment, and Reading Fluency

a. Description of language use, literacy environment, and reading fluency

The interaction between language use, literacy environment, and reading fluency was explored using both home and school environments. The plot describing the interrelationship is shown in Appendix M.

b. Hypothesis Testing

Hypothesis was formulated to test the interaction effect between language use, literacy environment, and reading fluency. A Two-way ANOVA was conducted to test the hypothesis which stated that

H_{05}: There is no significant interaction effect between language use and literacy environment on reading fluency.

To ease testing of the hypothesis, two supplementary hypotheses were formulated

$H_{05.1}$: There is no significant interaction effect between language use and school literacy environment on reading fluency

$H_{05.2}$: There is no significant interaction effect between language use and home literacy environment on reading fluency

First Supplementary Hypothesis

To test the first supplementary hypothesis, a two-way analysis of variance was done for reading fluency. Variations in pupils' reading fluency were examined using a 3 (Language Use: Kiswahili, Mother tongue, English) by 2 (School Literacy Environment: Rich, Poor) ANOVA. The findings are presented in Table 4. 30.

Table 4.30

ANOVA for Interaction Effects between Language Use and School Literacy Environment on Reading Fluency

Source	Sum of Squares	df	Mean Square	F	Sig.
Language Use	223.11	2	111.55	.15	.86
School literacy Environment	5207.24	2	2603.62	3.52	.03
Language Use*School Literacy Environment	1424.68	3	474.89	.64	.58
Total	1178264.00	388			

There was a significant main effect for school reading resources on reading fluency F (2,388) =3.52, p=.03. Higher reading fluency scores were among pupils from schools with more reading resources 67.24(*SD*=26.45) and lower among those from schools with poorer resources 47.55(*SD*=25.34). There was no significant main effect for language use on reading fluency F (2,388) =.15, p=.860. There was also no significant interaction effect between language use and school literacy environment on reading fluency, F (3,388) =.64, p=.58.

The first supplementary null hypothesis of no significant interaction effect between language use and school literacy environment on reading fluency was retained, p>05. It was concluded that there is no significant interaction effect between language use and school literacy environment on reading fluency.

Second Supplementary Null Hypothesis

The hypothesis stated that:

$H_{05.2}$: There is no significant interaction effect between language use and home literacy environment on reading fluency.

The second supplementary null hypothesis was tested using a 3 (Language Use: Kiswahili, English, Mother tongue) by 2(Home Literacy Environment: Rich, Poor) ANOVA. The findings were presented in Table 4.31

Table 4.31

Language Use and Home Literacy Environment Effect on Reading Fluency

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Language Use	4,104.02	2	052.01	2.69	.06
Home Literacy Environment	1,205.04	1	1,205.04	1.58	.21
Language Use* Home Literacy	4,554.94	2	2,277.47	3.14	.07
Total	**1,178,264.00**	**388**			

Table 4.31 shows there was no significant main effect of language use on reading fluency. This means that there was no significant mean difference in reading fluency among pupils with different levels of language use (F=2.69, p.>05).

There was also no significant interaction effect between language use and home literacy environment on reading fluency $F(2,388)=3.14$, $p>.05$. The supplementary null hypothesis was retained at $p>.05$. It was concluded that there is no statistically significant interaction effect between language use and home literacy environment on reading fluency. This means that there was no significant mean difference in levels of language use and home literacy environment in relation to reading fluency.

b. Discussion

The findings of a significant main effect for school literacy environment on reading fluency are similar to Oketch et al (2014) who found significant differences to oral literacy improvement made by changes to the classroom literacy environment Lango and among Kiswahili users

A school literacy environment that is rich in literacy experience emphasizes speaking and reading in the learning activities of all pupils. Having access to the reading resources allows pupils to develop an interest in different literature. Pupils who lack these opportunities tend to lag in reading. The amount of print in a classroom provides visual stimulation and reinforces concepts for reading. In this study, teachers had over 5 years of teaching experience and these serve as a learning model for language and reading fluency. Differences in school literacy environment can explain reading fluency where an environment deprived of storybooks and stimulation for reading for example would result in a lag in reading.

In the analysis on the interaction effect between language use, home literacy environment, and reading fluency, there was no significant main effect for language use on reading fluency. These findings do not support Lewis et al (2015) who found that language frequently spoken at home between the mother and children and home literacy experiences supported learning in consequent languages. Liu (2015) in a study among 58 bilingual Chinese–English preschoolers also found a positive interrelation between language use and reading fluency. The more parents used English with their children the better their reading in English. Much of the literature in this area is in early literacy where the focus is on the child and mother interaction and language.

In Kenya, most parents talk to their children in Mother tongue or Kiswahili, not in English. Positive transfer to reading may be possible in these languages and not English oral reading fluency. Many pupils in Kenya begin formal education without understanding English language whether spoken or written. The school becomes the place where many pupils are instructed in English language for the first time.

4.8 Interaction effect between Language Use, Literacy Environment, and Text Comprehension

H_{06}: There is no significant interaction effect between language use, literacy environment, and text comprehension.

To ease testing of the hypothesis, these two supplementary hypotheses were formulated

$H_{06.1}$: There is no significant interaction effect between language use and school literacy environment on text comprehension.

$H_{06.2}$ There is no significant interaction effect between language use and home literacy environment on text comprehension.

To test the first hypothesis, a two-way analysis of variance was done for text comprehension. Variations in pupils' text comprehension were examined using a 3(Language Use: Kiswahili, Mother tongue, English) by 2(School Literacy Environment: Rich, Poor) ANOVA.

Table 4.32

Interaction Effect Between Language Use and School Literacy Environment on Text Comprehension

Source	**Type III Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
Intercept	61.089	1	61.08	42.94	.000
Language Use	4.197	2	2.09	1.47	.230
School Literacy Environment.	64.645	2	32.32	22.72	.000
Language Use * School Literacy Environment.	46.274	3	15.42	10.84	.000
Total	**1,221.000**	**388**			

There was a statistically significant main effect for school literacy environment on text comprehension F (2,388) =22.72, p<.05 There was a statistically significant interaction effect between language use and school literacy environment on text comprehension F (3,388) =10.84, p<.05. Pupils who used English the most and were from schools with rich reading resources

1.59(SD=1.6) had better scores in English text comprehension compared to those who did not. The first supplementary null hypothesis was rejected and the alternative was accepted at p<.05. It was concluded that there is a significant interaction effect between language use and school literacy environment on text comprehension.

To test the second supplementary hypothesis, a two-way analysis of variance was conducted for text comprehension in home literacy environment. Relationships in pupils' text comprehension were examined using a 3(Language Use: Kiswahili, Mother tongue, English) by 2(Home Literacy Environment: Rich, Poor) ANOVA. The findings are summarised in Table 4.33

Table 4.33

Interaction Between Language Use and Home Literacy Environment on Text Comprehension

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	195.64	1	195.64	112.24	.00
Language Use	2.86	2	1.43	.82	.44
Home literacy Environment	8.68	1	8.68	4.98	.03
Language Use * Home Literacy Environment	.68	2	.34	.19	.82
Total	1221.00	388			

There was a significant main effect for home literacy environment on text comprehension F (2,388) =4.98, p<.05. There was no significant interaction effect for language use and home literacy on text comprehension. F (2,388) =0.19, p>.05. The second supplementary null hypothesis was retained. It was

concluded that there is no statistically significant interaction effect between language use and home literacy environment on text comprehension.

Discussion of Findings

There was a significant main effect for home and school literacy environment on text comprehension. The findings are similar to Netten, Droop, and Verhoeven (2011) who found positive influence for reading resources on reading comprehension. Literacy experiences and prior knowledge of words influenced text comprehension of the children in the study, while the influence of reading resources was suppressed by the home language of the participants.

Kenya's school-going children are exposed to at least one other language that is not their Mother tongue (Dinga, 2016). For them, English is learned through the influence of teachers during lessons and social interactions with peers. It is at school that there is much interaction with books written in English for academic learning and instruction. In the current study, the use of English in both poorly and richly resourced homes was related to better English text comprehension than the use of Mother tongue and Kiswahili in either environment.

In the current study, pupils were required to construct meaning out of text whose language they hardly use at home. According to Melby-Lervag and Lervag (2014), children are disadvantaged in text comprehension when the language at home and school are disconnected. The language at home was Mother tongue and Kiswahili and these did not support comprehension in English. A significant

interaction was found between language use and school literacy environment since the use of English in school supports comprehension of vocabulary.

Lewis, Sandilos, Hammer, Sawyer, and Mendez (2016) observed that using English at home supports reading ability in English. According to Bedore et al. (2012) the amount of exposure and use of dual languages and literacy experiences including the presence of reading resources positively influence vocabulary and oral comprehension. Telling stories in English was a home practice that was associated with better English vocabulary. In this study, there was no significant interaction effect between language use and home literacy environment on text comprehension. Children used either Kiswahili or Mother tongue at home and the use of English was most likely in school. The level of exposure to English at school was related to children's vocabulary.

4.10 Gender Difference in Reading Fluency

Reading fluency scores for boys and girls were analysed to find the mean and standard deviations and the results are presented in Table 4.34

Table 4.34

Descriptive Statistics of Reading Fluency by Gender

	Gender	n	Mean	Standard Deviation
Reading Fluency	Girl	197	52.29	27.73
	Boy	191	42.66	27.26

Girls obtained higher mean scores 52.29(*SD*=27.73) in reading fluency than boys 42.66(SD=27.26).

Hypothesis Testing

The seventh hypothesis stated that:

H_{07}: There are no significant gender differences in pupils' reading fluency scores among class 4 pupils in Busia County. A t-test for independent samples was conducted to determine whether there were significant differences in reading fluency scores between boys and girls. The results of an independent samples t-test for mean differences are presented in Table 4.35.

Table 4.35

Independent Samples T-test for Gender Differences in Reading Fluency Scores

Variable	*T*	*df*	Sig.
Reading Fluency	3.446	386	.001

Note. N=388 df =degrees of freedom

Results in Table 4.35 reveal that there were significant gender differences in reading fluency (t=3.446, df=386, p<.05). This means that reading fluency scores for girls was higher than boys and the difference is statistically significant. The hypothesis of no significant difference was rejected and it was concluded that there was a statistically significant difference in reading fluency scores between boys and girls.

Discussion of Findings

Results of descriptive statistics showed that girls had a higher mean score of 52.29 (*SD*=27.73) than boys 42.66(*SD*=27.26) in reading fluency. Results of the

t-test showed that there was a statistically significant difference in reading fluency in favour of girls.

The findings are consistent with previous studies that show boys obtaining lower scores in reading fluency compared to girls (Uwezo, 2016; Wang'eri & Mugambi, 2014; Mullis, Martin & Foy, 2012). Studies seem to show that the gap in reading fluency between boys and girls shrinks over time.

Namaziandost, Fadhly, and Silihat (2019) also showed reading fluency in favour of female college students. The explanation for the findings was explained by gender differences. The researcher explained that females have the higher reading motivation and appear to have natural language processing abilities. These findings have been explained by Rowe (2011) who observed that girls are better in reading skills because they have higher verbal reasoning compared to boys.

The findings are inconsistent with those of Mwoma (2017) who found that among class three pupils in Narok, boys had higher mean scores in English reading fluency compared to girls. Boys were better than girls in reading fluency as was reported in Kainyu (2017) but the difference in reading fluency was not significant. These findings would have implications for teachers to reduce the gender gap in reading fluency by providing more practice in reading and develop instruction to help improve the reading fluency, particularly for boys.

4.11 Gender differences in Text Comprehension

Text comprehension scores for boys and girls were analysed to find the mean and standard deviations of girls and boys. The results are presented in Table 4.36.

Table 4.36

Descriptive Statistics of Text Comprehension by Gender

	Gender	n	Mean	Standard Deviation
Text Comprehension	Girls	197	1.23	1.28
	Boys	191	1.13	1.37

Note. 388

Table 4.36 shows that girls obtained higher mean scores of 1.23(SD=1.28) in text comprehension than boys 1.13(SD=1.37). The higher standard deviation among boys' scores indicates that their scores were more widely spread in value compared to girls' scores.

Hypothesis Testing

The eighth hypothesis stated that

H_{08}: There are no significant gender differences in pupils' text comprehension scores.

T-test for independent samples was conducted to determine whether there were significant differences in text comprehension scores between boys and girls. The results of the t-test are presented in Table 4.37 below.

Table 4.37

Independent Samples T-Test for Gender Differences in Text Comprehension Scores

Variable	*T*	*Df*	sig.
Text comprehension	0.762	386	.447

Note. N=388 df =degrees of freedom

Results in Table 4.37 reveal that there was a positive but no significant gender differences in text comprehension (t=0.762, df=386, p>05). This means that there was no statistically significant gender difference in text comprehension. The hypothesis of no significant difference was accepted and it was concluded that there was no statistically significant difference in text comprehension between boys and girls.

Discussion of Findings

Results of descriptive statistics showed that girls had a higher mean score of 1.23 (SD=1.28) than boys of 1.13(SD=1.37) in text comprehension. Results of the t-test however showed no statistically significant gender difference in text comprehension among the pupils.

The findings are consistent with an experimental research design study in Malaysia by Nero and Zulkiply (2020) who examined the effects of gender on the reading comprehension of 40 undergraduate students. Although the mean scores obtained by females were slightly higher than that of males, the differences in reading comprehension between males and females were not statistically significant. This shows a gender gap in text comprehension in

English appears to be sustained even in young adults. The findings were similar to Price-Mohr and Price (2017) who also reported a difference in text comprehension between boys and girls in England aged 4-5 years but the difference was also not statistically significant.

The findings also agree with findings from a series of experiments in Malawi on the use of digital devices to support reading, where Erling, Adinolfi, Hultgren, Buckler, and Mukorera (2016) found, gender differences occurred in favour of girls that when typical pedagogy was employed. This was similar to Baye and Monseur (2016) analysis of data collected over ten years from the International Association for the Evaluation of Educational Achievement (IEA) and the Programme for International Student Assessment (PISA) on reading achievement among primary grade 4 pupils. They reported girls were ahead of the boys in reading comprehension.

The findings differed from Cekiso (2016) study on reading comprehension of grade 3 learners from rural schools in the Eastern Cape of South Africa. A t-test for mean differences in their study had shown no mean differences between genders in reading IsiXhosa. However, there was a significant gender difference in English reading comprehension where girls obtained better scores than boys.

The findings were inconsistent with Mwoma (2017) who found that among class three pupils in Narok, boys had higher mean scores in English reading compared to girls. In the current study though girls had a higher mean score in text

comprehension, the difference was not statistically significant. Kainyu (2017) also found that boys had a better understanding of the text than girls.

The findings on gender differences in text comprehension remain inconsistent. There is much room for narrowing the gender gap in text comprehension and teachers must consider strategies for teaching comprehension that would ensure that the boys are also supported to improve text comprehension. This might include obtaining books of the interesting genre for boys and girls.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter summarises the study's major findings and their implications to the various stakeholders. Conclusions based on the research findings are made as well as recommendations for policy and further research

5.2 Summary

The first objective sought to determine the extent to which language use predicts reading fluency. The regression model found that language use did not significantly predict reading fluency F (3,384) =.365, p>.05. Descriptive findings showed that language use varied with context. Kiswahili was the language used most with 62.6% usage followed by Mother tongue at 29.9% and English 7.5% respectively. The participants mostly used mother tongue in the home context with the mother. The English language was mostly used at school with the teacher. The study findings also revealed that 47.7% of the participants were in the lowest (0-40) level of reading fluency. Inferential statistics showed that language use does not significantly predict reading fluency.

The second objective of the study sought to determine the extent to which language use predicts text comprehension. The regression model showed that language use did not significantly predict text comprehension F (3,387) =.846, p>.05. Descriptive findings indicated that only 20.1% of the participants obtained over 50% of the total scores in text comprehension. Most of the

respondents (78.9%) scored in the lower levels in text comprehension. Inferential statistics showed that language use does not significantly predict text comprehension.

The third objective of the study was to establish the extent to which literacy environment predicted reading fluency. Results of linear regression analysis indicated that there is a statistically significant predictive relationship between literacy environment and reading fluency.

The fourth objective of the study was to establish the extent to which literacy environment predicted text comprehension. The findings indicate that the literacy environment significantly predicted text comprehension.

The fifth objective of the study was to examine the interaction effect between language use and literacy environment on reading fluency. A two-way ANOVA indicated that there was no significant interaction effect between language use and home literacy environment on reading fluency $F(2, 388) = 3.14$, $p > .05$

The sixth objective of the study was to explore the interaction effect between language use and literacy environment on text comprehension. A two-way ANOVA indicated a significant interaction effect between school literacy environment and language used on text comprehension. $F(3,388) = 10.84$, $p < .05$.

The seventh objective of the study was to investigate gender differences in reading fluency. Girls showed higher reading scores than boys. The t-test results indicated significant gender differences in reading fluency.

The eighth objective of the study was to investigate gender differences in text comprehension. There were no significant gender differences in text comprehension.

5.3 Conclusions

The findings of the study led to the conclusion that there is no significant relationship between language use, reading fluency, and text comprehension. Although a comparison of reading scores had shown that the use of Mother tongue and Kiswahili was associated with better scores in reading fluency and text comprehension respectively, the languages mostly used by class 4 pupils indicate a lower existing vocabulary in English. The use of English in the school context and particularly with the teacher is important in reading achievement because it was shown to significantly predict reading fluency and text comprehension.

The availability of reading resources both at home and school is important for reading. The school literacy environment is particularly important for text comprehension while aided reading contributes more toward reading fluency than reading resources. At home, Siblings and parents support reading while the school teacher is an important model for English language use for pupils at school.

There were significant gender differences in reading fluency where boys obtained significantly lower scores than girls. There was no significant gender difference in text comprehension.

After 3 years of schooling, reading fluency and text comprehension in English remains a challenge to class 4 pupils. Reading resources at school and home as well as aided reading at home contribute significantly to reading fluency and text comprehension. Pupils in class 4 experience a complex situation with varied experiences of language use, home, and classroom literacy experience. Though the results of this study contribute to our understanding of multiple languages spoken in class 4 and their association with reading achievement, interpretations of the findings are limited to groups that share similar characteristics.

5.4 Recommendations

The findings of the study led to the following recommendations for both policy and research.

5.4.1 Policy Recommendations

i. Since pupils performed poorly in text comprehension, teachers should be encouraged to teach for comprehension. Though the practice of reading aloud is used in classrooms this must be done alongside text interpretation so that pupils understand what they are reading.

ii. English language use among pupils goes on in the school context and with their teachers. As models of English language use, teachers must be encouraged to use English in its correct form in their conversations with pupils and fellow teachers.

iii. Siblings offered the most frequent and varied reading support to pupils. For successful out-of-school reading assistance, parents should promote

positive social and educational interaction among siblings at home. They should also be encouraged to provide reading resources for children.

iv. Participants engaged in reading in the English language yet they used other languages in their social environment. The Kenya Institute of Curriculum Development should develop reading materials in languages that are in the catchment areas of the various schools to encourage extensive reading.

v. Findings on reading fluency showed that boys scored lower than girls and this finding is similar in previous studies. There may be a need to develop literacy programs geared toward improving reading, particularly among boys in primary schools.

5.4.2 Recommendations for Research

i. To help gain a broader understanding of this heterogeneous group of children, the research could be done to compare pupils' fluency and text comprehension in all languages to which pupils are exposed. Recommendations can then be developed on language use and reading based on languages pupils used both in and out of school.

ii. The present study looked at pupils from public primary schools. Future studies may consider doing a comparative study using pupils in both private and public schools as subjects.

iii. An experimental design may be used in the study on the relationship between language use and literacy environment on reading achievement. This approach could answer the question of causality.

iv. Boys' scores in reading fluency and text comprehension were lower than that of girls. Future studies may also find out why boys continually perform poorly in reading compared to girls and explore whether this trend continues into higher classes.

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APPENDICES

Appendix A: Letter Seeking Respondent Consent

Dear Pupils,

My name is Brenda Oliwa. I am a student at Kenyatta University in the Department of Educational Psychology. I am carrying out a study on language use and literacy environment as predictors of reading fluency and text comprehension. This study will require you to answer questions about yourself, read and respond to questions from a short passage in English. The exercise will take about 90minutes. You are free to be part of this study and no one will punish you for choosing not to be part of the study. The information you provide will only be used to help improve pupils reading fluency and text comprehension.

If you understand this and agree to join in the exercise, please write the first letter in your names in the space below.

I.....agree to be a part of this study.

Looking forward to working with you.

Yours faithfully,

Brenda Oliwa

Kenyatta University

Appendix B: Students' Questionnaire

Section A: Background Information

Please read the following instructions and questions carefully then fill in the blank spaces or put a tick (√) in the correct bracket.

Are you a boy or a girl? Boy ( ) Girl ( )

How old are you? ……..

Please put a tick (√) beside the correct statement

Section B: Language Use Questionnaire

In which language do **you use when speaking** to the following people? Please Put a Tick (√) in the correct box

SCHOOL	*English*	*Kiswahili*	*Mother Tongue*
Teacher in school			
Fellow classmates in class			
Fellow classmates in the school field			
School workers			
HOME			
Mother at home			
Father at home			
Older brothers and sisters			
Younger brothers and sisters			
Friends during play			

In which language do **these people speak** to you? Please Put a Tick (√) in the correct box

SCHOOL	*English*	*Kiswahili*	*Mother Tongue*
Teacher in school			
Fellow classmates in class			
Fellow classmates in the school field			
School workers			
HOME			
Mother at home			

Father at home			
Older brothers and sisters			
Younger brothers and sisters			
Friends during play			

1. In what language do you like to read?

(a) English (b) Kiswahili (c) Mother tongue

2. In what language does your family like to listen to the radio?

(a) English (b) Kiswahili (c) Mother tongue (d) None

Section C: Literacy Environment Questionnaire

Home Reading Resources

Please Put a Tick (√) if **you have** the listed items at home.

Put an (x) if the listed item is **not** at home.

Item	(√) **if you have at home** (x) if the listed item **is not at home**
a) Story Books	
b) Newspapers	
c) Bible or Koran	
d) Dictionary	
e) Calendar	
f) Phone	
g) Television	

Answer all the following questions in the spaces provided.

Choose one answer to the following question.

1. How often do you read at home?

(a) I read every day (b) I read once a week (c) I often do not read at home.

2. Do you have someone to help you read at home? Yes or No.

If your answer is yes, who often helps you read at home?

Put a tick (√) on the correct space.

a) Mother ..... b) Father.....

c) Brother..... d) Sister.....

d) Please write here if someone else often helps you read at home.

.....

3. What does the person who helps you read do while helping you to read?

.....

.....

.....

.....

.....

Appendix C: School Reading Resource Checklist

To be filled by the researcher to indicate the presence (√) or absence (-) of resources in the school.

Name of school: _____

Reading Resources	Available/ Place available
a) Display of books	
b) Study desk	
c) Reading time table	
d) Textbooks	
e) Storybooks	
f) Newspapers	
g) Radio	
h) Wallcharts	
i) Word games	
j) School library	

General Observations- Classroom physical environment

i. Sitting arrangement:

_____

_____

i. Description of written materials on walls if any:

_____

_____

_____

iii. Storage of books facilities

_____

_____

Appendix D: Teachers' Questionnaire

1. Please tick (√) your highest Teaching profession qualification?

P1 Certificate ( ) Diploma in Education ( )

Bachelor of Education degree ( ) Master of Education ( )

Other ( ) Please specify ……

How long have you been a teacher?

0-5 Years ( ) 6- 10 Years ( ) 11-15 Years ( ) 15+ Years ( )

Carefully read the following statements below and tick (√) the option that truthfully describes your school/classroom experience.

Item	Statement	5	4	3	2	1
1.	**Classroom literacy experience** Pupils listen to passages read aloud from books					
2.	Pupils discuss with teacher passages that are read to them					
3.	Pupils read independently daily					
4.	Pupils receive feedback on their reading efforts					
5.	Pupils have many reading opportunities					
6.	**Reading support** Challenged readers are organised into small group discussions					
7.	Challenged readers have books for younger children to read.					
8.	Challenged readers sometimes have one to one session with the teacher					

9.	**Language Use**					
10.	Pupils are occasionally allowed to use Mother tongue or Kiswahili in class					
11.	Pupils are punished whenever they use Mother tongue or Kiswahili in class					

Key: 5 =Never 4=Rarely 3=Unsure 2=Often 1=Always

Appendix E: Teachers' Semi-Structured Interview Schedule

Teachers' Semi-Structured Interview Schedule

1. Please share your experience on language use in school among class 4 pupils.

2. What language do teachers usually use in class?

3. How do pupils participate in reading activities?

4. How does school support reading among class 4 pupils?

5. How do teachers support reading among class 4 pupils?

6. How do pupils' families support reading among class 4 pupils?

Thank you for your Participation

Appendix F: Pupils' Reading Test

Instructions to Pupils:

Please read this passage out loud. This is a timed exercise so please stop when asked to stop reading.

Nangira's Bananas

The class prefect asked all the children to sit down at their desks and be quiet	16
The English teacher was still in the staffroom	24
Class four pupils obeyed and sat at their desks	33
Only one girl did not obey the instructions	41
Nangira stood beside her desk	46
She looked continually outside the window of the classroom	55
She was pointing her finger at something outside the window and started smiling	68
All the children ran towards the window to see what was outside	80
They saw the donkey that roams around the school field	90
It had Nangira's bag around its nose and the donkey looked happy to be eating bananas.	105
Nangira laughed because she now knew that it was the donkey that stole her bananas	120
Her classmates were innocent	124

Appendix G: Reading Comprehension Test

Instructions to pupils: Write the answer to each of the three questions in the space provided.

1. Where were the pupils?.....
2. Who was disobedient to the prefect?.....
3. Why did the pupils run to the window?.....
4. The last sentence reads 'Her classmates were innocent.'

   Which one of the words given below has **the same meaning** as the word innocent?

   a) Free (b) Not guilty (c) Happy (d) Forgotten

5. Who stole Nangira's bananas?.....

Appendix H: Scoring Procedures

Reading fluency scoring procedure:

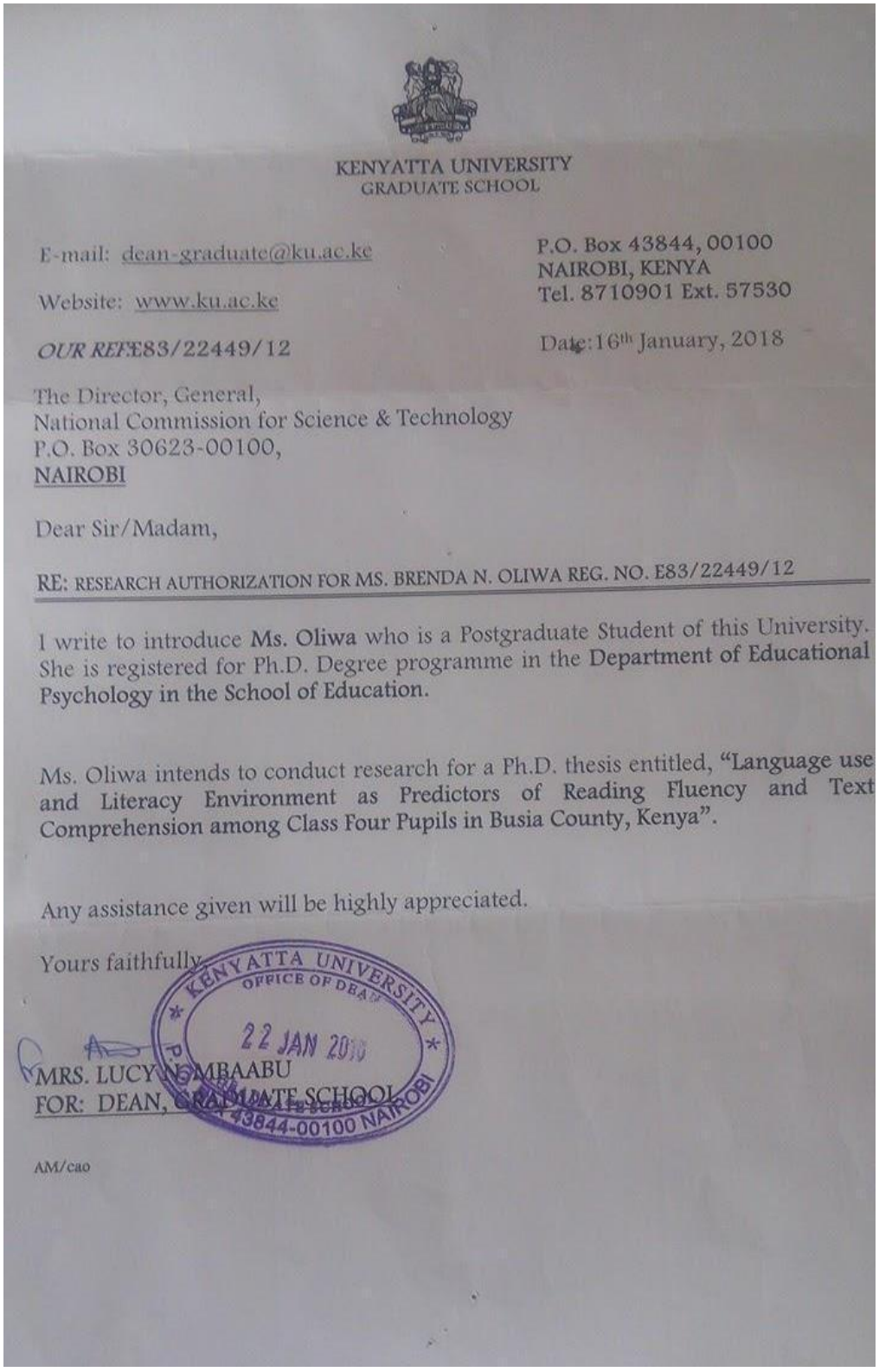
The examiner obtained an average count of the total number of words the pupil reads correctly in one minute. The words-per-line totals listed at the end of the sentences gave correct words at the end of each line. The number of errors which included words skipped and words added by the reader which were not identical to the text was counted. The reading rate is obtained by subtracting the number of errors from the total number of words read in one minute. This was repeated and an average score was used to determine reading fluency.

Reading Fluency Test Interpretation: Maximum score possible was 124 while the minimum score possible was 0.

Reading Comprehension Scoring Procedure: 1 point was awarded for each correct response. The maximum score possible was 5 and the minimum score possible was 0.

Reading Comprehension Test Interpretation: A score of 3-5 meant high text comprehension.

Appendix I: Graduate School Authorisation



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

OUR REF: E83/22449/12

Date: 16th January, 2018

The Director, General,
National Commission for Science & Technology
P.O. Box 30623-00100,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. BRENDA N. OLIWA REG. NO. E83/22449/12

I write to introduce **Ms. Oliwa** who is a Postgraduate Student of this University. She is registered for Ph.D. Degree programme in the **Department of Educational Psychology in the School of Education.**

Ms. Oliwa intends to conduct research for a Ph.D. thesis entitled, **"Language use and Literacy Environment as Predictors of Reading Fluency and Text Comprehension among Class Four Pupils in Busia County, Kenya".**

Any assistance given will be highly appreciated.

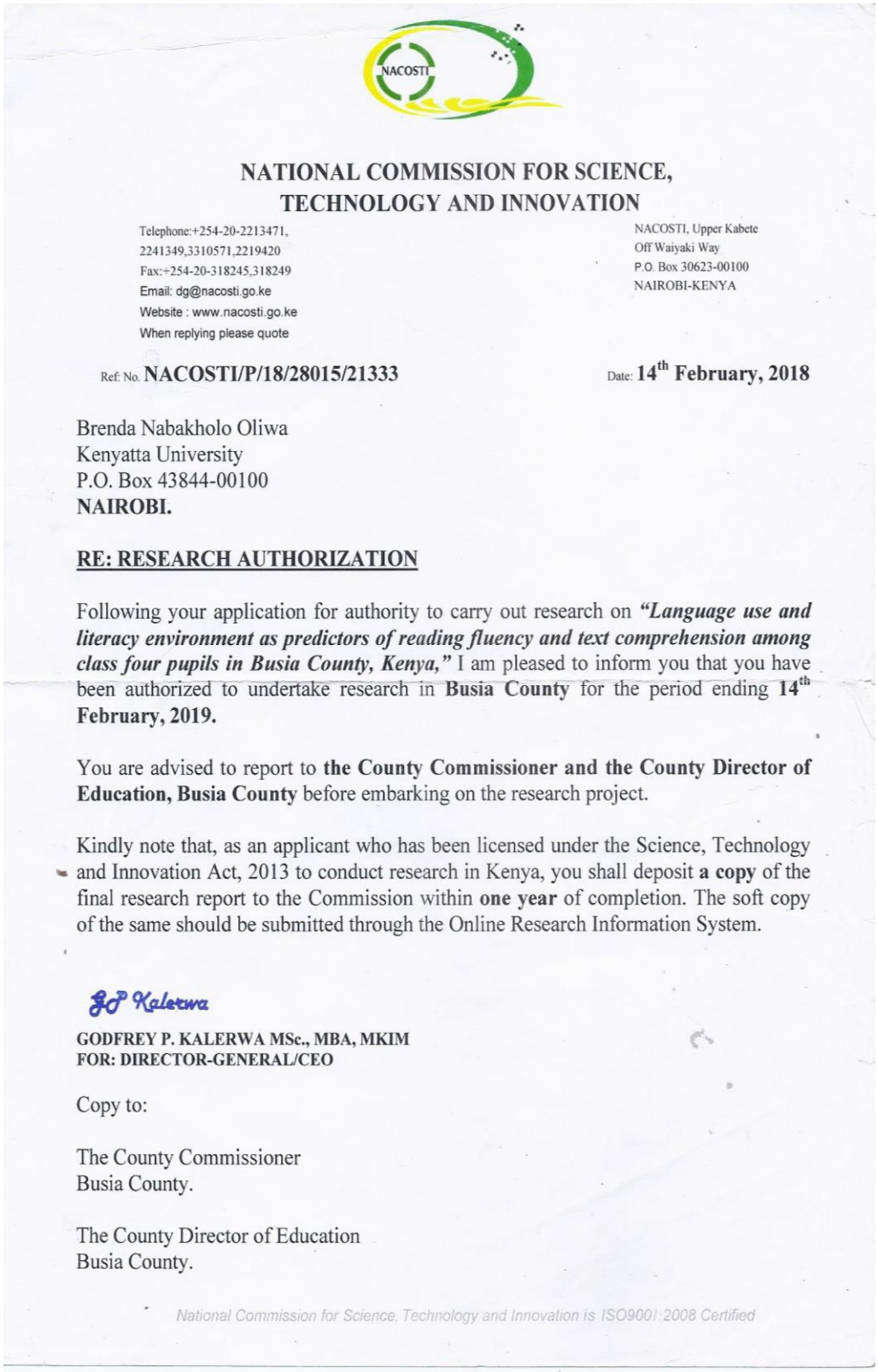
Yours faithfully,

KENYATTA UNIVERSITY
OFFICE OF DEAN
22 JAN 2018
P.O. BOX 43844-00100 NAIROBI

MRS. LUCY NJAMBAABU
FOR: DEAN, GRADUATE SCHOOL

AM/cao

Appendix J: Research Authorisation



NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471, 2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/28015/21333**

Date: **14th February, 2018**

Brenda Nabakholo Oliwa
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Language use and literacy environment as predictors of reading fluency and text comprehension among class four pupils in Busia County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Busia County** for the period ending **14th February, 2019.**

You are advised to report to **the County Commissioner and the County Director of Education, Busia County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GP Kalerwa

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Busia County.

The County Director of Education
Busia County.

National Commission for Science, Technology and Innovation is ISO9001:2008 Certified

Appendix K: Research Permit

THIS IS TO CERTIFY THAT:
MS. BRENDA NABAKHOLO OLIWA
of KENYATTA UNIVERSITY, 38300-100
Nairobi,has been permitted to conduct
research in Busia County

on the topic: LANGUAGE USE AND LITERACY ENVIRONMENT AS PREDICTORS OF READING FLUENCY AND TEXT COMPREHENSION AMONG CLASS FOUR PUPILS IN BUSIA COUNTY, KENYA

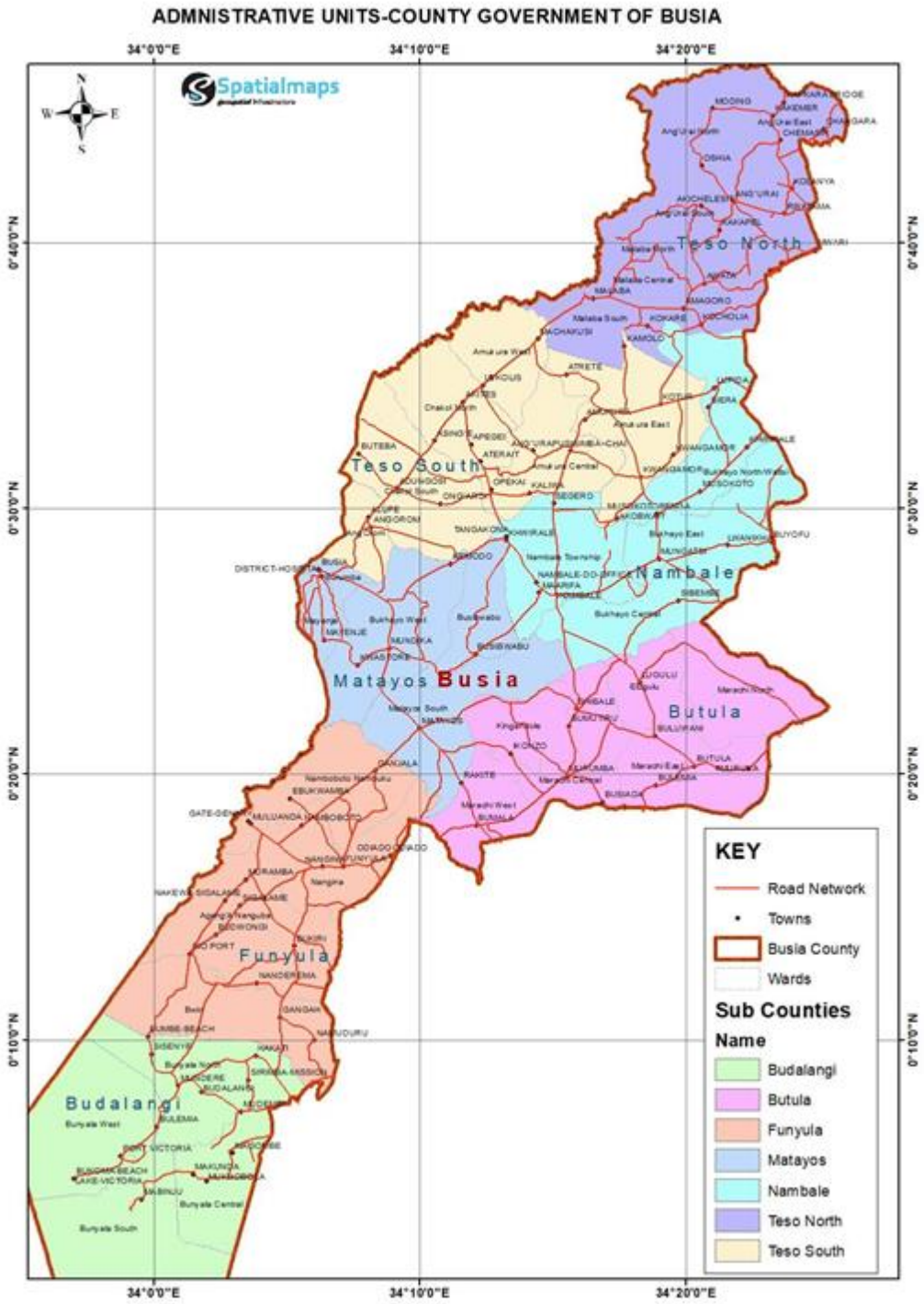
for the period ending:
14th February,2019

Applicant's
Signature

Permit No : NACOSTI/P/18/28015/21333
Date Of Issue : 14th February,2018
Fee Recieved :Ksh 2000

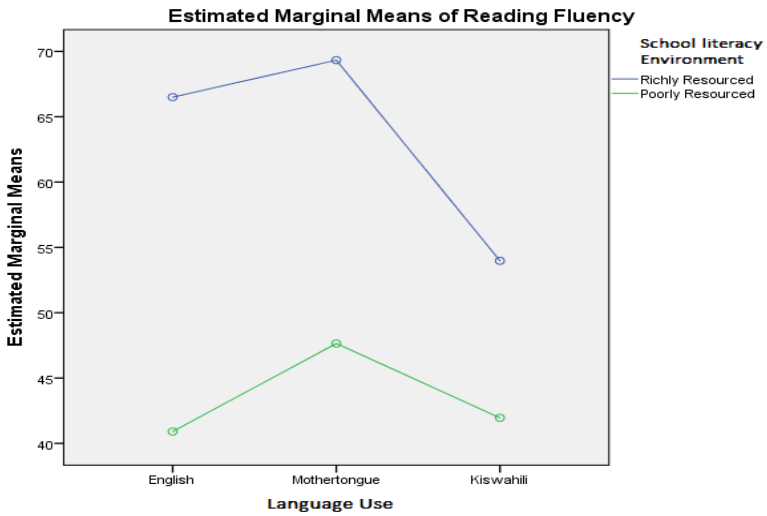
Director General
National Commission for Science,
Technology & Innovation

Appendix L: Map of Busia County



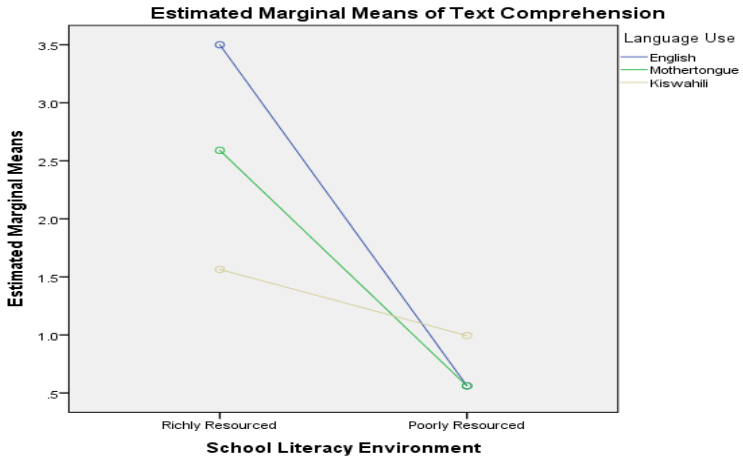
Appendix M: Figures on Interaction

Interaction between language use, school literacy environment and reading fluency.



Higher reading fluency scores were among pupils from rich school literacy environment who used Mother tongue the most and lower among those from poorly school literacy environment

Interaction between language use, school literacy environment and text comprehension.



Text comprehension was highest among those who used English the most and came from schools with rich literacy environment.